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TEXTBOOK OF
Abnormal Psychology

Revised Edition

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Preface

PERHAPS NO MORE PERTINENT COMMENT ON THE FIELD OF ABNORMAL psychology can be made than that a textbook presenting this subject matter has become outdated in five years. The present revision was undertaken because of the vast amount of new research findings in the medical, social, and biological sciences during and since World War II. There has been a reawakening of public interest in the problems of psychopathology and psychosomatic medicine and increased application of the methods of research and clinical psychology to the problems of psychotherapy. We have incorporated these recent advances in the field of abnormal psychology into their historical context in order to give the student a broad understanding of the entire field. In many instances, new research findings have replaced vague theorizing or dogmatic proclamation. There are still many basic questions for which there are only "best guesses" rather than verified facts. If the authors be allowed a prediction, it is that the next five to ten years will provide more additions to our basic knowledge of mental abnormality than have been made during the past fifty years.

We still contend that the student entering the field of abnormal psychology is entitled to have as many as possible of the relevant facts and theories placed before him so that he may be stimulated to weigh the evidence, draw his own conclusions, and perhaps go on to appreciate how systematic investigation may bring order into areas at present marked by ignorance and confusion. We continue to assume an eclectic standpoint. We further assume that psychology is a basic science standing between the biological and social sciences. We have endeavored to hold a balance so that the evidence from both biology and social science could be incorporated. We hope that we have maintained open mindedness and still preserved the skepticism of the scientist.

The order of chapter presentation has been rearranged. Certain topics

have been dropped and several new subjects introduced. New illustrations and case history material have been utilized. The case material is drawn from actual histories but treated in such a way that identifying data have been concealed. The references at the end of each chapter have been selected both to substantiate statements in the text and to serve as starting points for further reading by the interested student.

Again, it is our pleasure to acknowledge the assistance of our colleagues at the Psychiatric Institute. We are especially indebted to Dr. Joseph Zubin, Dr. Paul Hoch, Dr. Franz Kallmann, and Dr. Jacob Shatzky for material and advice. We are also indebted to many of our colleagues, past and present, in the medical and psychological sciences whose names have not been included in the text, but whose research findings and insight have influenced our own viewpoint. We are indebted to Miss Violet Hamwi for clerical assistance and to Mrs. Johanna J. Broeker for her stenographic work. Mrs. Jane Cushman has again assisted us with the drawings and figures. Many other students and associates have assisted at various points. For all this assistance we are most grateful. Errors of omission and commission remain the sole responsibility of the authors.

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New York City

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TEXTBOOK OF

Abnormal Psychology

SECTION ONE
ORIENTATION

Chapter 1 *Introduction*

ABNORMAL PSYCHOLOGY DEALS WITH HUMAN BEHAVIOR AND MENTAL experience which seem unusual, unreasonable, or in one or another way distinct from the ordinary psychology of everyday life. Most people have a degree of understanding of the behavior of others. We understand (or think we can) most of other people's actions and thoughts; we can explain (more or less adequately) their behavior; we can predict (to our own satisfaction) their future behavior; and we feel that if we exerted ourselves sufficiently we could control other people's behavior, although most of us doubt that we could control their thinking.

Every now and then we meet, are told about, or read about actions or experiences of some person which seem to us not understandable. His words and actions are somehow foreign to our own notions of common sense and appropriate behavior. We consider that this person is odd, peculiar, bizarre, unusual, astonishing, or crazy. We are puzzled by his behavior because it does not "make sense" to us. We try to find some explanation for this behavior. At times we attribute its strangeness to the fact that our knowledge of the person is incomplete; at times we distort or read something into the peculiar behavior, so forcing it into a pattern which is understandable to us; and at times we merely give the behavior a name and feel as though we had explained it.

Every one of us has had one or more periods when we could not understand or control our own actions or thoughts; we thought that we were "out of our minds," possessed, confused, or crazy. Usually such periods have been short, and not too frequent. We soon forgot them or rationalized them to ourselves and to others. If they seemed peculiar, occurred too frequently, or lasted too long, we may have started discreet questioning among our friends, gone to see a doctor, or started reading books on psychology. Hence, although

we understand most people (and ourselves) most of the time, it does happen that on occasion we are baffled or astonished by behavior in ourselves and others which is odd or unusual.

Scientific psychology is organized knowledge concerning the behavior and mental life of mankind and is usually directed toward the better understanding, prediction, and control of behavior and of mental experience. As subdivisions of this field of knowledge, general or normal psychology deals with the usual, while abnormal psychology deals with the behavior or mental life which is odd or unusual.

It is possible to define abnormal psychology in many other ways and in much stricter terms. Abnormal psychology can be considered as the psychology of those who are sick; the psychology of persons who are at the extremes of the normal distribution of human characteristics; the psychology of those who are badly adjusted within themselves or to the world they live in; the psychology of the occult; the psychology of the insane; or the psychology of the incompetent and irresponsible. Essentially, the definition or delimitation of any field of knowledge depends on the formulation of the problem or problems to be answered. The student of psychology may reasonably expect to find somewhere in the entirety of scientific psychology a description and discussion of the kinds of human behavior and experiences which are not clearly reasonable or understandable in terms of his own experience or in terms of common sense.

In abnormal psychology the student may expect to find enlightenment, but not always the answer, to questions such as the following:

Why do people go crazy? Will overwork, emotional stress, or the horrors of war make a man lose his mind? What is a neurosis? How can I tell whether a person has a neurosis or whether he is "putting on an act" to get out of a difficult situation? What goes on in the mind of a crazy person?

Can psychologists and psychiatrists read minds? How do they know what a crazy man thinks? What is the unconscious? Is it the same as the libido? How is an inferiority complex treated? Why are people anxious and insecure? Does an unhappy childhood lead to mental illness? Are sex perverts crazy?

What is a split personality? What is schizophrenia? Why do people commit suicide? Why do old people often seem peculiar? Isn't most insanity just weakness of will; couldn't a crazy man get well if he wanted to?

Why do crazy people hear voices or see visions? What happens when a man loses his memory and wanders away? Why are deaf people inclined to be suspicious? Why do some insane patients alternate between boundless elation and such hopeless depression?

What is psychotherapy anyway? What is meant by psychoanalysis? How could an operation on the brain make some persons sane? Doesn't electrical treatment weaken the mind even if the patient does get well?

How much of mental peculiarity is inherited? I have a relative in a mental hospital; what are my chances of developing a mental illness? If we changed things so that there would be less poverty, guaranteed jobs, and no discrimination, would that prevent mental illness? Are drunks crazy or does the whiskey make them lose their minds? Isn't it true that every year there are more patients in mental hospitals than there were the year before?

What is a Rorschach test? Can the IQ be changed? What is a projective technique? What is the difference between a clinical psychologist and a psychiatrist? What is non-directive therapy? What are hypnoanalysis and narcoanalysis? Does special training or psychoanalysis make a feeble-minded person brighter?

The newspaper said Hitler was a psychopathic personality; does that mean he was insane? Are criminals psychopaths?

What are scientists and doctors doing about discovering the basis of insanity? Does an insane person have something wrong with his brain?

How can I stop worrying? I have peculiar ideas and feelings; should I see a psychiatrist? I was discharged from the Army for combat fatigue; I am still jittery; what should I do about it? The mother of a friend of mine is peculiar; she won't let them take her to a doctor; what should they do? Are mental hospitals such dreadful places; why doesn't somebody do something to make them better?

Questions like these are legitimate and frequently asked. A meaningful answer is expected. To some of these questions and others like them there are answers based on fact; to others, there are logical and consistent interpretations which fit the observed data; but for many there are only theories and hypotheses which do not cover all the available material and which have only partial acceptance by experts who work in this field.

There are other questions which the student might also expect to be answered in a book on abnormal psychology but with which we will not be concerned. For example, the student will find hypnosis treated as a therapeutic measure with but little information on its essential nature. This is because we regard the hypnotic state as a special mental condition which is not of itself definitely related to the main body of abnormal phenomena. Little will be found on the psychology of sleep and dreams which phenomena we do not regard as abnormal, although they may be disordered in connection with other forms of mental pathology. Nothing is included which

deals with the psychology of the occult, spiritualism, or telepathy. Nor will morbid, fantastic, or astounding case history material be included, not because such material does not occur, but because such histories rarely shed light on the basic problems concerned. The details of *medical* procedure and therapy will not be taken up, since such considerations are not properly in the scope of abnormal psychology. Psychotherapy will be considered since it depends so completely on psychological principles.

It is unfortunate that many people cling to the idea that mental disorders of any sort are horrible and disgraceful. This idea of disgrace is a hangover from the days when mental derangement was attributed to sinfulness or to possession by evil spirits. Today we know that most mental disorder is a form of illness in the same sense that measles and cancer are illnesses. Any educated person should try to understand, and, in so far as possible, help to correct conditions which may favor abnormal psychological states. Civilization is based on increased knowledge, on understanding, on control and correction of conditions which are unfavorable to human existence. In brief, civilization is based on the substitution of scientific thought for magical thinking. Mental abnormalities are not due to magic, nor can they be cured by magic.

As psychologists, we are convinced that the greatest problems of modern civilization are not atomic energy or biological warfare, but in the field of human relationships. World conflict, intergroup conflict, and conflict between the individual and society are basic problems which turn the stock-piles of uranium and bacteria into weapons or useful tools. The broad aspects of abnormal psychology are threefold. First, a better comprehension of the problems of the prevention and treatment of mental illness; second, the development of more satisfying and effective forms of personal adjustment in otherwise normal people; and third, popular recognition of the effects of psychopathology in public life, for example, among judges, legislators, policy makers, and political leaders. A mentally unsound man in a position of authority can disturb, disorganize, and even lead to the destruction of a society and civilization. Greater public knowledge of the manifestations of psychopathology among our leaders and policy makers and the ways in which the social order can immunize itself against the effects of such psychopathology is needed.

We do not advocate any particular school of thought, theory, or explanation as central, sufficient, or all important in the field of abnormal psychology. Rather, our viewpoint is eclectic, inasmuch as we select and report portions of different systems of thought and theory wherever they seem to be valid and useful. Eclecticism sacrifices a certain amount of consistency, but it affords the student the opportunity for examination of all viewpoints

so that he may draw his own conclusions in the light of his own general attitude toward life and its problems. Furthermore, abnormal psychology still contains much descriptive material for which many speculative answers may be advanced without opportunity for the complete proof of the truth of any of the speculations. It is better to maintain an open-minded, tolerant attitude in the hope that the future will bring explanations which can then be placed in their proper setting.

In general, abnormal psychology should not be viewed solely as a field of psychopathology, extreme deviation, or bizarre phenomena isolated from the rest of psychology and the other sciences. The goal of the psychologist should be to make these not-immediately-understood phenomena comprehensible and coherent through a knowledge of the conditions under which they arise and the various factors—neurological, physiological, or psychological—which enter into their production. There are so many gaps in our present knowledge that complete understanding of these phenomena is not yet possible, nor does it seem that we will have answers to some of the questions for many years to come. Some of the occurrences seem as alien to normal attitudes, beliefs, and experiences as the experience of color is alien to the completely color-blind person. It has been found that the visual experiences of the color-blind person are equivalent to gradations of grey. The person with color vision, knowing this fact, can understand and appreciate how the world of color looks to the color-blind person. In the same way, the mentally normal person should reach a better understanding of the mentally abnormal when analogies and similarities between his ways of thinking and feeling and those of the mentally abnormal are formulated for him.

In the presentation of the field of abnormal psychology the following plan will be used. Section One (Chapters 1, 2, and 3) will provide an orientation, several theories and concepts and certain terms and classifications which are regularly used in this field. Section Two (Chapters 4–18, inclusive) will include descriptions of the various forms of abnormal behavior and mental experience as they are at present classified. The varieties of abnormality and the diagnostic categories will be presented. Section Three (Chapters 19–23) will deal with the general concepts and factual knowledge which are used to explain the varieties of abnormality. Section Four (Chapters 24–29) will deal with psychopathology; that is, the disorders of psychological functions, such as sensation or memory without respect to the particular diagnostic category in which the disorder may occur. Finally, Section Five (Chapters 30–34) will consider the problems and methods of psychodiagnosis and psychotherapy.

Chapter 2 Description, Terminology, and Orientation

LIKE ANY OTHER DIVISION OF SCIENCE, ABNORMAL PSYCHOLOGY IS BASED on description, classification, and explanation; on counting and measuring. During past centuries various ways of explaining and dealing with unusual or abnormal behavior have been tried. The phenomena have been attributed to the influence of the stars, possession by evil spirits, to a sinful life, lack of moral responsibility, and so on. During the present century the methods of science have been applied to the problems. Scientific procedure has resulted in a more complete understanding, in a better basis for prediction of the course of the abnormality and in the cure of a fraction of the total number of afflicted persons. We continue to believe that the methods of science will provide greater understanding in the future since they have carried us further than any other method tried in the past. It will be apparent that science still has a long way to go in clarifying the problems of abnormal psychology and that there is always the human tendency to resort to thinking in terms of magic when science fails to give an answer. It is easier to blame the voices heard by an insane man on spirits than it is to work out a biochemical basis.

Description in abnormal psychology

Since the subject matter of abnormal psychology consists of unusual experience or behavior we must start by describing that which we do not understand. We must state as accurately as possible just what occurs without putting bias, preconception, or evaluation into the description. This is difficult. One's interests, beliefs, and previously formed concepts will determine what is reported and, to some extent, what is actually perceived. Thus, the verbal description of an event serves an essentially different end from a

photographic record. The former is more akin to a photograph taken through a filter which allowed only certain visual qualities to go through and make an impression. In other words, all verbal description is selective; and the scientific approach, by emphasizing counting and measuring, guards against these selective factors, preventing, in part, distorted views and distorted reports.

If the same occurrence is witnessed or experienced time after time, one's description will be more complete since various details that are important may have been missed in the first observations. After many students have observed many unusual persons, their observations and descriptions may be brought together, compared, and checked one against the other. In this way, we arrive at what one might call a "typical" description of some particular deviation, together with the variations that occur in this particular abnormality. At the same time, we frequently gain knowledge of the relationship which exists between some particular abnormality, such as a tendency to falsify memory, and certain other deviations which may occur together with it in the same person, for example, emotional instability.

In order to make such descriptions accurate, we need to invent new words or attach new meanings to old words. Specialists in the field of abnormal psychology have been criticized because of the freeness with which they coin such new words or redefine old words. This criticism is unjustified. If we could immediately, accurately, and easily describe or understand the condition, it would not be part of abnormal psychology. Here, as in other developing fields of science, a new and specialized vocabulary must be created so that we may accurately describe the events with which we are dealing.

In the description of unusual and strange experience and behavior the student will meet words such as "hallucination," "aphasia," or "phobia." We will explain such terms as they first occur. In the same way, specialized meanings will be given to words which are used otherwise than in everyday speech, such as "anxiety," "intelligence," and "compensation." (A glossary of terms will be found at the end of the book.)

Sources of information

Thus far we have spoken only of direct observation of the behavior of the abnormal individual, but actually there are many other available sources of information about him. One of the most obvious ways of getting information concerning an abnormal person is to ask him to tell us about himself.

This may take considerable time and be quite revealing. When we are dealing with an abnormal individual we must be exceedingly cautious in our acceptance of his self-description. We must inquire repeatedly and at length in order to find out what the words, phrases, and ideas he uses in self-description really mean to him. We frequently find that his words and ideas have a different meaning and a different reference from that which we commonly accept. Only repeated questioning can clarify our understanding of such self-description. These descriptive accounts are valuable in that they furnish us with an understanding of what it is like to undergo psychopathological experience. We must remember, however, that these are abnormal individuals and their concepts and explanations may be colored by their abnormality, so that we cannot accept as factual everything they say about themselves. The abnormal person may tell his story over and over again, using much the same language and ideas. His account may be consistent from one time to the next; his report is "reliable" in the statistical sense. On the other hand, judged by all ordinary standards, what he is saying and the explanations which he gives are incorrect. It is, in part, this incorrectness which causes us to classify him as abnormal.

The next step in obtaining information concerning such abnormal persons is to interview extensively the friends, acquaintances, relatives, and others who have known these individuals more or less intimately. Such material must be carefully evaluated. It has been demonstrated experimentally that the more informants one has concerning any individual, the more inconsistent becomes the information. This inconsistency grows from the fact that only rarely are the informants trained observers. Some mothers are unable to give correctly the age of their own children. Husbands will be unable to report anything concerning the names or family history of their wives' parents and relatives. Children will be unable to say anything about the places where their parents have lived, the work that they have done, or the education which they may have received.

Another source of error in information gained from interviews works out as follows: If anyone of us should be asked to report all that we know concerning some friend or acquaintance who has become mentally ill, we would tend to recount instances in which the person in question has behaved in an odd or peculiar fashion at some previous time; that is, we will tend to overemphasize instances which indicate peculiarity and neglect to report the evidence which indicates that the individual was for the most part normal and rational. Again, it may be that this particular individual has been a source of annoyance or concern to us. If this is true, the report will, to say the least, emphasize peculiarities of behavior at the expense of the usual

normal activity. In our evaluation we must remember that even the most peculiar and abnormal individual is apparently normal in much of his everyday existence.

The art of obtaining accurate and meaningful information from either the patient or from those who know the patient is one which is at present acquired only by experience and supervised training. In the basic training of the psychiatrist, the social worker, or the psychologist who is going to specialize in this field, much time and attention have to be given to proper and adequate training in the art of obtaining a life history which is truly representative. A great deal of the confusion which exists in the field of abnormal psychology is due to reports which have been taken by individuals who were not scientific observers.

Classification in abnormal psychology

Any classification of material describing deviations in behavior or in mental life is done for some particular purpose or some particular end. There is no evidence which would indicate that the phenomena of mental abnormality, or the causal factors operating in the deviations, have changed in any way during the period of recorded history. The way in which the deviations have been classified or explained has depended upon the philosophical views or concepts of life which the leading thinkers of any particular time have adopted.

At present there are in use in the field of abnormal psychology three major types of classification: (*a*) classifications dealing with normal versus abnormal; (*b*) classifications of groups among those who are abnormal; and (*c*) descriptive categories of reactions which are not oriented to either normality or abnormality. The classifications which have to do with normality versus abnormality have grown out of the ancient beliefs of the moralists or religious groups and constitute the legal viewpoint toward mental abnormality. The moralists have tended to associate normality with goodness and abnormality with evil, or the losing of the mind with the activity of the Devil. In the law, an attempt is made to draw a sharp line of distinction between sanity and insanity so that the concept of responsibility or lack of responsibility might hold as a fixed point of reference in legal thinking. In sociology and in anthropology, emphasis has been placed upon classifications which have been related to the social and cultural standards and to the changing of those standards as civilization has changed. The statisticians have identified normal with the middle portion of the distribution of particular characteristics of human behavior and abnormal with the extremes

of such grouped data. Psychologists have tended to identify normal with well-adjusted and abnormal with maladjusted behavior.

The second of the major systems of classification is based primarily upon the clinical studies of physicians who are trying to differentiate types of reaction within the general group of abnormal individuals who have been institutionalized, usually through some court of law, and who are, so far as the law is concerned, considered insane. The principal systems used at present are those of Kraepelin, of Meyer, and of Freud.

The third of the major systems of classification, namely, that dealing with categories of reaction, falls, for the most part, into the general field of personality study. Here psychologists have been interested in describing and classifying those dimensions of human reactions upon which all individuals can be compared.

Since this textbook presents abnormal psychology from an eclectic standpoint, it is worth while to consider somewhat more closely the everyday concepts which enter into this formulation and see which are valid and which should be rejected. It will become more and more apparent as we go along that many of our notions with respect to normality and abnormality are based upon preconceptions and prejudices which have little or no basis in fact. Most of us in our everyday dealings with social and mental deviants accept the notion that their deviation is a result of some fault, shortcoming, sin, or irresponsibilty, on their own part or on the part of their relatives and close friends. It is common to explain insanity, feeble-mindedness, and other gross deviations in behavior or in mental life in terms of praise and blame. It is common to act as if some form of major deviation had been adopted willingly by the abnormal person, and if he would only exert his will power he might overcome his difficulty. This attitude, which is characteristic of the everyday viewpoint, is a carry-over from the classification system which was followed for many centuries by the moralists and religious leaders. In spite of the almost universal acceptance of this common-sense belief, it has been most unproductive for either the prevention, cure, or understanding of abnormality. The application of this viewpoint in legal procedure does serve to protect society from the abnormal person (the lunatic) and to protect the lunatic from himself or from being taken advantage of because of his disability.

Certain marked forms of abnormal behavior are dealt with by the courts, where they are classified according to established legal concepts. In the eyes of the law a person whose behavior is grossly disordered or grossly defective is judged and classified on the basis of subjective tests or standards such as having the ability to distinguish between right and wrong or being "possessed

of an insane and irresistible impulse." Persons who are, or may be, dangerous either to themselves or to others because of insanity or mental defect are adjudged mentally incompetent or irresponsible, so that a guardian is appointed who will assume responsibility for the care and protection of this particular person. Since both care and protection are apt to be prolonged and to involve segregation from society, the actual guardianship is assigned, in most instances, to the superintendent, warden, or director of some institution which takes over the care and treatment of the individual. The classification in the eyes of the law is of two major varieties: those whose intellect is and has been from an early age of such character that they are unable to care for themselves or to compete in any fashion with their fellows; and those whose alienation of mind is such that they can no longer distinguish right from wrong and hence are not responsible for their own acts, possibly endangering their own life and safety.

Another grouping of abnormal persons derives from social standards and customs. From this standpoint, any person, whom for one reason or another his fellows wish to segregate, is called abnormal. This applies equally to the defective, the delinquent, or the diseased. The rational basis for the segregation may frequently change. The basis is not solely medical, psychological, legal, moral, ethical, religious, or biological, although these factors enter into the system of segregation in varying degrees at different times. If a central idea does exist in this social concept, it is that a group of persons decide (or are told) that the behavior of one or more individuals in their group is not "reasonable," and that these individuals cannot be appealed to by the same forms of logic or reason which will activate the majority of that group. This reasonableness exists only at a particular place, a particular time, and with a particular group. It changes as the ideas, times, and groups change.

The system of classification used most extensively in abnormal psychology is that developed by psychiatry, based on a combination of medical and psychological observations. This system of classification of abnormalities and deviations of behavior, which has been accepted by organized medicine and which is partially recognized in the courts of law, has the most widespread scientific acceptance of any in present use. No one believes that this system has any degree of finality about it, but it does serve as the best available way of holding together the various descriptive categories so that they can be studied and (to a degree) understood. Most of this classification is based upon the formulations of Kraepelin, a German psychiatrist, and is called the "Kraepelinian classification." In dealing with the main groups of deviants, this particular system will be followed.

General terminology

We have already mentioned that new terms would be defined as they occurred and that the definitions for many of these terms will be found in the glossary at the end of this book. There are, however, certain medical, statistical, and sociological terms and concepts which should be made clear before proceeding further.

Health and disease are contrasting terms. *Health* means soundness of body and mind so that bodily or mental functions are duly discharged. *Disease* means a condition of the body or mind, or some part of the body or mind, in which functions are disturbed or deranged. *Adjustment* (or adaptation) is a means of maintaining health. *Maladjustment* is a characteristic of disease, since it is a breaking down of the integrity of the organism and so may lead to death. *Pathology* is the science or study of disease; *psychopathology,* the science or study of mental disease. *Etiology* is that part of science which investigates the causes of disease. *Diagnosis* is the determination of the nature of a diseased condition. *Prognosis* is a forecast of the probable course of disease in some individual. A *symptom* is a sign or indication, usually of a disease. A *syndrome* is the concurrence or combination of several symptoms in a disease.

The words "disorder," "deviation," "defect," and "disease" are used more or less interchangeably. *Defect* is more frequently applied to conditions of feeble-mindedness; *disorder* or *deviation* to less severe forms of abnormality, but the student will have to rely on the context of the statement for any shades of difference in meaning which may be implied.

With respect to the outcome of disease, the terms *cured, alleviated, remission, improved, ameliorated,* or *unimproved* are used. There is no standard which has been agreed upon which will cover the variety of meanings which can be attached to the word "cured." Hence, this term must be used with a great deal of caution. *Remission,* meaning that the particular symptoms which were markedly apparent at some earlier time have subsided or disappeared, is more exact and descriptive. The terms *ameliorated, alleviated, improved,* or *unimproved* are properly used to compare the present condition with some previously described status. A person may be very deviant at present and at the same time much improved, in contrast to his disorder at some previous time.

The difference between *predisposing* and *precipitating* causes is one which the student should have clearly in mind. A predisposing cause refers to some factor or factors in the general background of the individual; his heredity, his history of health and sickness, his physical constitution, or his

social or economic status. A precipitating cause refers to the particular incident or combination of incidents which led either to his seeking or being brought to the attention of authorities. For example, the case of an unhealthy, poorly educated, poorly nourished, shy, timid boy of poor heredity (predisposing factors) whose mother has recently died, leaving him alone in the world (precipitating incident), who is brought to the hospital because of his strange and apathetic behavior, provides an illustration of the distinction between these two factors.

Organic and *functional* are terms which are used quite often in abnormal psychology. Where the word "organic" is used it is a token that evidence has been established indicating that in this oddly behaving person there is a change in the structure of the nervous system, or some one or more of the other organic systems of the body. We have real and substantial evidence that an actual physical change has taken place to which we may attribute the psychological deviations. Almost all of those deviant conditions without demonstrable organic change or deviation are termed *functional* disorders. This does not mean that no organic changes exist; it does mean that scientific methods which are at present available have been unable to isolate and identify changes which may have occurred. It is, of course, equally possible that there is no organic change, but that there has been a change in the functional relationship between bodily organs or a conflict among the habit systems which has led to the odd and peculiar behavior.

In the background material bearing on the major behavior deviations considered in abnormal psychology, concepts which occur frequently should be clarified. Most of our information concerning the number of abnormal individuals comes from official reports based on hospital, institution, prison, special school, and other special population samples. One figure given in such reports is that of *resident population*. This means the number of persons residing as patients at the particular institution on some particular date. Since the length of residence varies tremendously among the different kinds of abnormal persons, it is unfair to measure their relative frequency on the basis of residence alone. Furthermore, some types of abnormality are recurrent, bringing the individual to the institution on several occasions. To meet these two difficulties a great deal of reporting is done in terms of the number of *first-admissions,* which is merely the number of individuals who come to institutions for the first time in a given year. Any subsequent appearances are termed *readmissions*. First-admissions plus readmissions are *total admissions*. Resident populations and first-admission figures are of themselves difficult to compare until they are expressed as rates per thousand of the general population. Hence, such figures are usually reported as first-

admissions per 10,000 or per 100,000 of the general population, or of the general population of the same age and same sex.

In reporting the outcome of treatment, it is customary to give the number of patients who have improved per 100 patients of the same classification under treatment during some given period of time. The discharge rate of any institution is figured in the same way as the outcome rate, except that the question of condition at time of discharge is omitted. For example, we may find that 80 per cent of patients who had delirium tremens were discharged during a year, which would mean that out of every 100 such patients 80 left the institution either unimproved or improved.

Varieties of abnormal people

The everyday ways in which abnormal people are characterized are descriptive but not systematic. To say that a person is crazy, insane, "nuts," out of his mind, nervous, queer, mad, cracked, odd, a "jerk," unbalanced, idiotic, or half-witted does not lead to a better understanding of the abnormality. It is possible, however, to separate several major groups, each of which has certain common features and characteristics.

1. The most marked deviation from normal human behavior is shown by those individuals who are insane, in the legal sense of the term. These persons are suffering from a real derangement of their mental life, which is so severe that they do not respond to any of the usual methods of reason and logic which are sufficient to guide ordinary human beings. For the most part, these persons have very little or no insight into their own condition. Such a major mental deviation is spoken of as a *psychosis.* (The term *psychosis* is reserved for the major mental diseases or derangements—the loss of mind.) Usually such persons are legally committed to mental hospitals. In the milder stages, in partial recovery after an acute outbreak, or when the economic situation of the family is such that adequate home care can be given, the condition may be camouflaged by some such name as *nervous prostration, emotional instability,* or *nervous breakdown.*

2. There are many people who suffer from milder mental disorders. Such persons recognize the abnormality of their own symptoms and their need for help. They have considerable insight into their own condition. They are able to carry on their daily life after a fashion, although with nowhere near the efficiency which might be expected of them were they not preoccupied with morbid fears, anxieties, compulsions, and obsessions. Such individuals are said to be suffering from a *neurosis.* (The term *neurosis* refers to the milder mental disorders which are usually found to be without

adequate physical or environmental basis, and which are recognized by the patient as abnormal, but over which he has no voluntary control.)

3. Closely allied to the neuroses are the psychological disturbances which produce, or are produced by, many kinds of physical illness or invalidism, and which are termed *psychosomatic* (mind-body) medical problems. These persons are not necessarily considered to be peculiar. They are not insane. Their symptoms are commonly thought to be allied in some way to their physical disability.

4. There are a number of persons who, without having shown or having been conscious of any definite disorder of behavior or experience, feel that their general responses to the demands of everyday life are unsatisfactory. They are forced to seek guidance in order to achieve a better adjustment to the ordinary problems of existence. Such individuals complain of feelings of inferiority, feelings of discrimination, jealousy, unwarranted suspicion, overenthusiasm, exaggerated emotional reactions, mild depressions, chronic irritability, violent likes and dislikes, and so on. Some of these persons are said to have a *character neurosis,* and others have been called "members of the lunatic fringe."

5. There is another group of people who are, as a rule, not mentally or physically ill, but whose behavior is socially disturbing and socially inadequate. Friends, relatives, or the authorities may realize the unsatisfactory nature of their behavior and attempt to arrive at some basis of better life adjustment. This group includes delinquents, criminals, some alcoholics, the moral imbeciles and certain of the sexually abnormal. Such persons are termed *psychopathic personalities.* They differ from the neurotics and psychotics in that they are not troubled by their own feelings and behavior; rather, their behavior is disturbing to others, particularly because they do not benefit or learn from experience or punishment.

6. There are those, who, from a very early age, lack the ability to acquire knowledge or to profit from experience and training. They are unable to care for themselves adequately. These persons we term *mentally deficient* or feeble-minded.

These six groups include the majority of human beings who are called "abnormal" and whose behavior and experience constitute the subject matter of abnormal psychology. There is much variability in the composition of each of the groups. Considering the diversity of behaviors, it will be apparent why abnormal persons present so many puzzling problems. By way of illustration, suppose that any one of us knew five hundred persons, (Figure 1). Among that five hundred there would probably be fifteen or twenty who are considered abnormal. Of these fifteen or twenty, three or

four would be feeble-minded, three or four would be criminal or delinquent, three or four would be insane, and one might have epilepsy (convulsive seizures). The remaining four or five would be neurotic. Since any one of these groups is but a small percentage of our entire acquaintance, we have

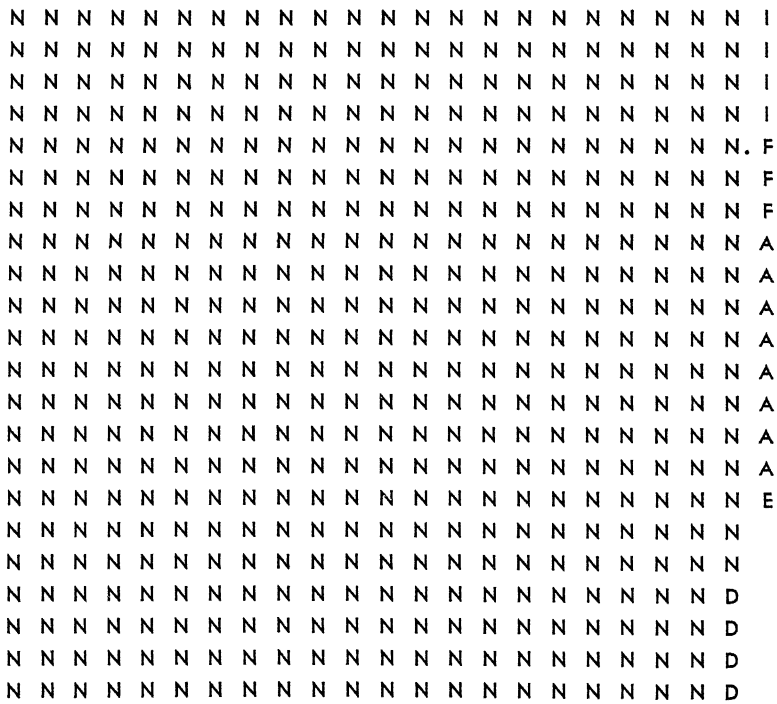


Fig. 1. Diagram showing the approximate proportion of normal and abnormal persons among five hundred American adults.

N–Normal; D–Delinquent or Psychopathic; I–Psychotic; F–Feeble-minded; A–Neurotic; E–Epileptic.

no basis either for comprehending their problems or for devising adequate ways for dealing with them, unless special training or information has been made available to us. Abnormal psychology attempts to provide such information.

Explanatory concepts used in abnormal psychology

Modern scientific psychology regards human behavior and mentality as the product of heredity, physical constitution, physical and mental growth and development, and the influence of physical and social environment. Students of other sciences, arts, or disciplines may find it more advantageous

to make some other basic assumptions. The psychologist, as a scientist, has organized his knowledge on the basic assumption that man is a biological organism and that his behavior must be explained in terms of this assumption.

Many of the explanatory concepts used in psychopathology are of the "either-or" variety; that is, all of the factors belong to either one system of explanation or to some contrasted system. For example, we have the contrast between explanation in terms of heredity and explanation in terms of environment. We have explanations in terms of medical concepts and in terms of legal concepts. Since much of the basic explanation of abnormal behavior is related to heredity or environment, these two concepts may be briefly stated. They will be examined at length in Chapters 19 and 20.

Heredity-environment

By *heredity* is meant the sum total of those characteristics (either physical or mental) which are passed from parent to child by means of the biological carriers—the chromosomes and genes. By *constitution* is meant the relatively constant biological make-up of the individual, which governs the adjustment which that individual makes to disease or health. It is not a specific concept but refers to those positive factors leading toward normal, healthy adjustment. It is the result of two components, heredity and environment.

It is generally accepted that many of our outstanding physical characteristics are genetically determined—the color of our eyes, our stature, or our skin color. Many deviations and disorders, both mental and physical, are known to run in families. Finally, among the varieties of abnormal behavior there are those which are clearly genetically determined; others where heredity seems to play no role; and still others where the role of genetics is complicated by the effect of many other influences—physical, social, and personal.

The use of environmental concepts in the explanation of psychopathology is widespread and, to a large extent, composed of a hodgepodge of cause-effect statements and observations, with but little guiding logic assumed. Such explanations as: "He went crazy because his business failed," "She has been despondent ever since her baby died," "He belonged to the Baptist Church, but his neighbors argued religion with him till he went crazy," "He has never been right since he was hit on the head in that accident," "The judge sent him up for six months and he has been queer ever since," "Her mother and father were divorced, so that made her a queer

person," are frequently heard. Usually the basic assumption is that there is an unusual social event, a profound emotional shock, an injury or an illness, or some deviation in family life which caused the abnormality. The implication is that if enough stress is placed on any person, he will "lose his mind." It will be necessary to examine the concept again and again as each variety of abnormality is discussed. In addition to a direct appeal to either heredity or environment, there is a group of explanatory concepts which partake from both sources, but are largely independent schemes of explanation.

Physical and psychological trauma

Trauma means an injury or a wound while psychological trauma means injury by intense emotion. There is good evidence that it is possible to produce deviant and disordered behavior and gross psychopathology by intense and long-continued emotional experience. Some men who were under enemy bombardment for a long period of time, certain persons who were buried in the wreckage of a house following aerial bombing, some mothers who have lost their children in terrifying accidents, a few children who have cruel, abusive parents—have developed anxieties, nightmares, obsessions, and uncontrolled outbursts of emotional behavior which can be directly related to the situations in which they have found themselves. Most persons, however, recover from acute symptoms which have been set up in this way when they are removed from the particular situation and are no longer forced to make adjustments under the intense strain of the situation. It is also known that the susceptibility to stress is, in many instances, related in some fashion to an innate predisposition. Some persons succumb, others do not, to apparently equivalent trauma or stress.

Adjustment

By *adjustment* is meant the arranging, composing, and harmonizing of differences, conflicts, and decisions which must be made in everyday life; the regulation or systematization of the elements of our behavior in relation to the larger components of existence. In many of the minor character and personality disturbances we commonly refer to the trouble as a defect in the adjustment which such a person is making to the problems of his existence.

Meyer has stated certain of the usages of the concept of adjustment as follows:

> The greatest difficulty in life, the greatest source of disharmony, apart from the influences of heredity, infectious disease, and poor feeding, and poor chance

for growth, is the discrepancy between impulse, yearning and ambition on the one hand and the actual opportunities and the actual efficiency of performance on the other. We know of people who try continually to put square pegs into round holes. They are unwilling or unable to learn to know and to accept their own nature and the world as it is, and to shape their aims according to their assets.

In a large percentage of cases in which persons come to grief in their mental and moral health, the trouble is of just that kind. Failing with what is frequently impossible and undesirable anyhow, these persons develop emotional attitudes and habits and tendencies to fumble or to brood or to puzzle or to be apprehensive until what students of the functional diseases of the heart call "a break of compensation" occurs, a break of nature's system of maintaining the balance, with a more or less sudden slump and implication of collateral functions. In our field this is oftenest in the form of a declaration of a simple "minor psychosis" in which the patient maintains his or her general understanding of the situation and of human relations, but develops exhaustibility along with inability to rest, insomnia, various derangements and collisions of functions that should work smoothly, not only of sleep, but also of digestion, of the heart action, of the breathing, of the thyroid function. . . . Or the patient develops obsessions, fear of death or of going insane. . . . Gets into a way of paying attention to various queer feelings and conditions of special parts and organs which really are normal. . . . These conflicts and emotional states then are apt to rise to the surface as peculiar dreamy states, fancies, outbreaks of emotions. . . . The real relation, however, of these manifestations to the actual difficulties remains concealed from the layman and often actually hidden from the patient. . . . The condition is like an evasion, not a real disease of the organs but a disorder of balance by evasion or substitution, a disorder of management, adaptation and adjustment.*

Psychologists, psychiatrists, and psychoanalysts

A good deal of confusion exists in the minds of many concerning the similarities and differences which exist between psychiatrists, psychoanalysts, and psychologists. The term *psychiatrist* as it is used at present is restricted to those individuals holding the degree of Doctor of Medicine and who specialize in the diagnosis, care, and treatment of patients suffering from nervous and mental diseases. *Psychoanalysts* are usually medically trained individuals who make use of the special therapeutic technique of psychoanalysis in their care and treatment of the mentally disturbed individual. There are a few psychoanalysts who do not have medical training. They are called "lay-analysts." Professional *psychologists* usually hold the degree

* H. S. Jennings, J. B. Watson, A. Meyer, and W. I. Thomas, *Suggestions of Modern Science Concerning Education.* New York, Macmillan, 1917, 201–204.

of Doctor of Philosophy (or, at least, Master of Arts) and are concerned with all of the problems of human behavior and mental life. Abnormal psychologists are those professional psychologists who specialize in the scientific study of the cause, cure, and explanation of mental disabilities. Their interest is different from that of the psychiatrist in that the psychiatrist is a physician attempting to heal the mentally sick, while the abnormal psychologist is the research specialist who is attempting to provide understanding and new methods which the psychiatrist can put to use. Clinical psychologists are professional psychologists who either specialize in the application of standardized psychological tests to persons in order to measure certain special abilities, such as intelligence or reading comprehension, so that guidance based on objective tests may be given, or who apply special psychological therapeutic procedures, such as hypnosis or reeducation, to help in the adjustment of persons who find marked difficulty in meeting the problems of everyday life. As a group, psychiatrists, psychoanalysts, abnormal and clinical psychologists are termed *psychopathologists.*

Summary

Abnormal psychology is a branch of biological and psychological science which deals with unusual human behavior and mental experience. It is largely descriptive. Various systems of classification of abnormal phenomena are in use. The system which assumes that the varieties of abnormality are diseases and that the ultimate explanations will be found in terms of medical science has made the greatest progress during the last half century. There is a specialized technical vocabulary which has been developed for use in abnormal psychology. Use of these specialized terms facilitates explanation and understanding. Abnormal people may for convenience be grouped into six general categories, the psychotic, the neurotic, those suffering from psychosomatic complaints, those having character neuroses, the psychopathic personalities, and the mentally deficient. Those who specialize in the study of abnormal persons are termed psychopathologists.

SECTION ONE
ORIENTATION

Chapter 3 Psychopathology

THE ABNORMAL PERSON WILL ASK QUESTIONS OR PRESENT PROBLEMS such as these. "I am afraid that I must strangle my wife and I don't know why I have such an idea." "I hear the voice of Dr. Smith talking to me most of the time. He tells me what to do. He tells me things that are going to happen and often they do happen. No one else seems to hear the voice and besides, Dr. Smith has been dead three years." "Every time I have to make a decision I have an upset stomach and diarrhea." "People talk about me and pick on me. I just can't trust anybody." "There isn't any meaning left in life and although I try to resist, I keep thinking about suicide." "I walk in my sleep and I don't know why." "I don't know why I stole the car. I knew that I'd get in trouble. It just seemed like a good idea." "My sister was always bright but I never was able to learn much even when I tried." No one goes through life without troubles and difficulties. For most people, most of the time, the problem involved is one which they can recognize and understand even if they cannot solve it. Sometimes they cannot see any reason for feeling or behaving the way they do, they cannot understand themselves, or they give reasons and explanations which to the great majority of people seem illogical, meaningless, or unreal. These reactions and feelings are termed psychopathological.

In order to understand more clearly such problems we will in this chapter take up the phenomena, the symptoms and complaints, usually called psychopathological; the mental mechanisms by which different types of people try to handle the phenomena and a statement of the essentials of certain of the viewpoints which are used to explain psychopathological phenomena. In Section Four, Chapters 24–29, the phenomena of psychopathology will be taken up in detail as they are related to the various forms of abnormality.

Complaints and symptoms

Sick people have complaints which are to them qualitatively different from the "troubles" of the healthy person. Nowhere is the distinction more clearly seen than in the comparison of normal anxiety (worry) and morbid anxiety (dread *). We worry, or are bothered, because of something that has happened or may happen. We can free ourselves from worry by "making things right" or by "fixing things." Psychopathological anxiety cannot be made right or fixed. It is intense experience of dread without a conscious reason. It usually starts suddenly. It pervades one's entire being. It is ominous and overwhelming. It cannot be quieted. One seeks for reasons and attempts to explain the dread to oneself. Morbid anxiety (dread) does not appear in every abnormal person but it is the most frequent complaint of most patients. It becomes mixed or associated with many other symptoms. It leads to a wide variety of unusual behavior and subjective experience. There are many theories of its origin, its significance and its treatment. We will become acquainted with anxiety in many forms in the chapters which follow, since it is the central complaint in neuroses and a frequent occurrence in psychoses.

Closely allied to anxiety are general fearfulness and phobia. Many abnormal persons feel and act as though they were scared most of the time. The fearfulness is directed toward events and circumstances which may have an element of danger but which are taken for granted by the normal person. Such an individual is afraid to cross a street, to touch a door knob, to ride on a train. The fearfulness is usually secondary to anxiety and other complaints, but it acts to reinforce all of them. The acute fearfulness may attach itself to some single circumstance, it may shift from one to another set of experiences, or it may "float" in an unattached and unreasonable fashion. The experience and behavior which most people have when asked to handle a harmless snake or hold the handles of an electrical shocking machine are examples of "normal" phobias. The abnormal person has phobias which seem unreasonable to those who are normal. Such a person may go into a panic when forced to walk down a narrow street. He will say that he knows it is a foolish idea but that he fears the walls may somehow crush him or surround him and that he cannot endure the idea.

Just as a qualitative distinction must be made between worry and dread so a distinction must be made between normal and abnormal feelings of aggression. It is normal to want one's own way, to wish to be unimpeded and

* Note that special meaning and significance are being given to the words *worry* and *dread;* worry is normal, dread is abnormal.

unhampered and to feel irritated and belligerent if thwarted. It is abnormal to feel irritated and belligerent when there is no reason or when one actually recognizes that the hampering circumstances are necessary, desirable, or inevitable. The feelings of aggressiveness in the psychopathological individual are, like the feelings of anxiety, close to the surface and quick to overwhelm the entire mental organization. Like anxiety, aggressiveness is usually a primary symptom.

As a means of avoiding or relieving both anxiety and aggression many patients develop *compulsions* and *obsessions*. These feelings are in one sense comparable to the normal experience one has in connection with superstitious acts. We touch wood to avoid the consequences of boasting or wear a favorite old hat when we need good luck. The patient must wash his hands at frequent intervals, must make the sign of the cross, or perform some other ritual which momentarily relieves the dread and feeling of irritation.

Depression is an all-pervasive feeling of hopelessness coupled with a feeling that existence has lost its meaning. It may be accepted or fought against. It is felt to be abnormal or unusual. "I have a nice home, wonderful children, and a loving husband—but I feel that it is all meaningless and I know I shouldn't feel this way." "It feels like I am living in a fog or under a suffocating cloud, and when the depression goes the feeling is one of being lifted up, of covers being pulled off." *Mania* or excessive elation which sometimes follows or precedes depression in the same patient, is experienced as an overwhelming euphoria and optimism plus some feeling of aggressiveness.

The symptoms or complaints so far considered are all essentially affective. There are primary sensory and perceptual disorders in many psychotic patients, namely sensory misinterpretations and hallucinations. (In fact, a door squeaks; in experience, "Did someone scream—did I scream—did I hear anything?") In other words, the person is not certain that sensory experience has occurred or that the meaning which he has given the experience is correct. *Hallucinations* are even more disturbing. They consist of perceptual experiences, voices, visions, tastes, odors, or felt movements without known sensory basis, and usually with the knowledge that no one else is having the same or comparable experience. Not only is there an uncertainty, but there is the knowledge that the experience is somehow very unusual and abnormal.

In certain disorders of the intellectual functions there is a recognition of loss of ability to carry through mental operations (to add a column of figures, to make a reasonable analysis, to play a game of chess) as well as one should. Coupled with this is a loss in memory or a feeling of uncertainty and

unfamiliarity with one's memories. One can neither remember or be sure that what is remembered is correct. In addition there may occur the experience of intrusion of ideas, fantasies, and trains of thoughts into one's mental life, which somehow are not part of one's own self. These intrusions cannot be easily diverted by an effort of will, and are only partly related to one's usual or ordinary experience. ("All of a sudden I start thinking about hanging myself, and I don't want to have such thoughts." "The idea of a black angel who keeps sweeping me where I don't want to go, keeps coming into mind." "The idea that my son cheated me out of my share of the business bothers me. I can't decide whether it happened or whether I only imagined it.")

Still more obscure are the disorders of volition. Patients will say that they know they should make a decision, but cannot. An entire morning will be spent trying to decide whether to put on tan or black shoes. Some patients will complain that they feel forced to do and say certain things. They complain that they find themselves making accusations or complaints without ever having thought of them before and realizing at the same time that the statements are, at the best, only partly true. The plea of "temporary insanity" to account for a vicious attack or murder is on occasion true, in that the person had no previous conscious intent and was voluntarily incapable of stopping his actions during the event.

Probably secondary to the disorders of affect, perception, intellect, and volition are the disturbances in feelings of well-being and of sleep. The person complaining of psychopathological symptoms usually says he is tired, lacks energy and is completely fatigued although he has been resting all day. He complains that he cannot sleep, or that sleep does not bring rest. He loses his appetite. All food tastes alike. There is no point in taking care of his appearance or his clothing. It is all too much effort. Stimulating situations which should "bring him out of it" are ineffective. For example, the inheritance of a fortune only makes him more lethargic than before.

Two more generalized symptoms result from the combination of such complaints, namely, *depersonalization* and *loss of insight*. The patient frequently complains that he is not sure whether all these things are happening to him or whether he is watching someone else very much like himself go through these troubles. Or he will complain that things seem somehow unreal; that he is not sure how much he is imagining or dreaming or what is real and what is imagination. He has difficulty holding things together in his mind. He can attend to one or two details but the rest of the experience slips away from him. When he changes his attention from the points he was sure of, they too become unreal. His span of attention is limited and most things

not in attention seem disconnected or fragmentary. All this adds up to a feeling that he is no longer sure what is "I" and what is "Not I." This is termed depersonalization.

The word *insight* is used in several different ways in the field of psychopathology. A mental patient is said to have insight if he recognizes that there is something wrong with him; that he is not feeling or responding the way most people do with similar complaints. Again, he is said to have insight when he understands his own abnormal behavior in terms of personal motivation, conflicts or needs and when his understanding is in essential agreement with the interpretation made by the psychopathologist who is studying his complaints. In these terms insight may or may not be true in an absolute sense. In brief, the statement, "The patient has insight," is a vague, descriptive phrase which many mean several things.

Failures in insight are easy to recognize in the case of certain psychotic patients. "The voice of the Angel Gabriel told me I should save the world. I have a special gift of hearing the voice of God. The tortures which I suffer are for my own salvation. All is real. I am picked out for a divine purpose." This patient lacks insight. He may even recognize and accept the fact that people believe him to be crazy and still fail to appreciate the unreality of his inner world. When the neurotic patient says, "I am full of dread; I can't make up my mind; I am always tired; there is no good reason for all this," there is said to be some insight. If he gives an explanation that is consistent with what the physician considers to be true then the physician would say he had full insight.

These are but a small fraction of the complaints which we call abnormal or psychopathological. They represent the way in which patients attempt to put their unusual subjective experience into words, and they represent one way in which these descriptions can be grouped. In one sense they are qualitatively different from normal experience. In another sense they are only exaggerations in the quantitative aspect of experience. It is debatable whether worry and dread are different or whether dread is but an enormously inflated worry. Most, but not all, patients insist on the qualitative rather than the quantitative difference in many of these unusual experiences.

Mental mechanisms [6] *

Through observation and study of both normal and abnormal people it has been found that there are striking similarities in some of the ways in

* The numbers inserted in the text in this fashion refer to the numbers of the references which are listed at the end of each chapter.

which difficult or unusual situations are met and handled. These characteristic modes of response are commonly called *mental mechanisms*. They constitute conscious or unconscious stylized mental and behavior processes for relieving complaints.

So far as the patient is concerned he has little or no knowledge of the origin or significance of his symptoms. They never really "make sense." They are thrust upon him. He tries to explain them to himself. He *rationalizes* them; meaning that he explains them in some fashion. He accounts for, or justifies certain of these feelings, ideas, acts, or emotions which are not rational. As reasonable human beings we all feel that we ought to be able to account for ourselves in terms which indicate that we have behaved and thought according to the best of our ability. Since much of abnormal behavior is not of this sort, irrational action is explained by an "unconscious" manipulation and revision of the events.

In seeking reasons for feelings, sensations, and behavior that seem strange to oneself, the common recourse is to some physical cause. ("I haven't been getting enough sleep." "That food didn't agree with me." "I have been working too hard at the office." "I strained my back lifting a trunk six months ago.") If some physical agent, or some organic function of the body can be held responsible, the person feels that he is reasonable and that the "strangeness" is understandable. Having established an acceptable rationalization, more and more attention is focused on the "culprit," the part of the body or the physiological function believed responsible. The complaint becomes centered on this structure or function. For example, on some occasion a person may feel unduly anxious and at the same time note that his heart is pounding. Hence he pays more and more attention to sensations from this region and is particularly responsive to changes in the heart rate which previously were overlooked. He comes to believe that there must be something wrong with his heart which gives rise to the feelings of anxiety. Or, the occurrence of strange visual phenomena, such as visual hallucinations, may be accounted for, within the personal psychology, as due to eye trouble. With some such successful rationalization he may be able to "live with" his abnormality for years before he seeks the help of a therapist, or he may go from one eye specialist to another when his calls should really be made at the office of a psychiatrist.

Another way of avoiding part of the unpleasantness of the complaints and their consequence in everyday life is *regression;* that is, one acts and thinks as a child or infant. The sick man acts like a baby. If the behavior and emotional expressions tend to remain childish even when the more obvious excuses for the childishness are no longer appropriate, we speak of

the style of behavior as *fixation.* At earlier stages of development childish dependence afforded an adequate solution to his problems. When in adult life one fails to handle a situation adequately, one may fall back on these earlier methods of adjustment. For example, the adult who has recovered from an attack of morbid anxiety but still shows a childlike dependence on his mother, as though the dependence would prevent another anxiety attack, is said to have become fixated in his emotional life.

By *projection* is meant the process of attributing to someone else unpleasant and pathological ideas, emotions, or attitudes which really belong to oneself. When blaming someone else for his complaints the patient is making use of the projection mechanism. The reverse of projection is *identification.* Here we have a molding of our idea of ourself after the fashion and pattern of someone that we have taken as an ideal or as a model. ("If a saint could stand it so can I, and so I try to be like a saint.")

Unconscious fantasies are those which have been formed or elaborated without conscious intent and appear as daydreams in everyday consciousness. Such fantasies may modify and determine the course of our daydreams as well as ordinary thinking. For example, the desire to be ill is derived from the unconscious fantasy that if one is sick, one will get love and attention which are not obtained so long as one is well and healthy.

One of the most common of the mechanisms is *repression,* which is the more or less successful exclusion of painful and unpleasant material from expression in either the behavior or the mental life of the person. It is a process of active forgetting which is carried out, usually, without volition on the part of the individual. If, for example, one has heard "voices" for several weeks but no longer hears them, the memory of the voice may be put out of mind and the person says that, so far as he can remember, the event never happened. Rejection and repression from consciousness may be so complete that ordinary sensory experience is lost. A blindness without physiological or anatomical basis may occur as part of the repression process. This form of repression leads to physical *conversion.*

Another general way of relieving the unpleasantness of pathological complaints is by a process of *catharsis,* which in this connection means the release of tension through talking about the unpleasant emotional experience, so that the very act of verbal expression seems somehow to drain off the acute unpleasantness. For example, everyone is familiar with the feeling of relief which comes from "talking out" some problem with a close friend.

It is possible to reverse this explanation and formulation of mental mechanisms which we have just given. If one assumes that every human being is possessed of a generalized dynamic force which drives him through

his existence, then the conflicts between the force and the reality of the external world are buffered by the mental mechanisms. In this sense, save for frequency of appearance, there is no distinction between the way in which the mechanisms occur in the life of the normal or abnormal person. The most complete formulation of this particular dynamic force concept is the theory of psychoanalysis which will be considered later in this chapter.

Typology

There is one more complicating factor which enters into psychopathology and which must be considered before any attempt is made to present explanatory theories. Practically every shrewd observer of humanity has been convinced that there is a tendency for certain personality characteristics and physical constitutions to go together. This observation may be phrased in this way. "Whenever one sees a man whose physical constitution can be described in such and such a way and who generally makes this and that sort of comment, then one knows that his general style of responding will be thus and so." Publications concerning the relation of typology to personality are extremely numerous. The interested student should read some of the more recent formulations for greater detail.[1, 3, 11]

In abnormal psychology there is evidence that certain symptoms and personality traits occur in constellations or groups. There seem to be patterns of reaction that are shown with a good deal of regularity although they are by no means uniform. In a sense they are "types" although this term has no exact meaning. Some of these patterns may be found in less extreme form among normal individuals. Certain of these personality traits are similar to, though not necessarily identical with, the symptoms observed in one or another of the major mental diseases. Those who resemble dementia praecox or schizophrenic patients (see Chapter 10) are spoken of as *schizoid* or autistic personalities. They are shy, close mouthed, given to daydreaming and wishful thinking, self-centered, incapable of overt emotional display, and not particularly interested in social or group activity. Many are basically hostile, and easily given to suspicion and jealousy. Others are apathetic, passive, and unresponsive.

The *cycloid* or cyclothymic personality resembles, in part, the symptoms shown in the manic-depressive psychosis (Chapter 9). The cycloid person is boisterous, emotionally unstable, has marked swings in mood between elation and depression, is interested in social events, and likes to be the life of the party. They are generous with help and with gifts. But they wish—and even demand—a return in kind. for their generosity.

The *epileptoid* type tends to be self-centered, pedantic, monotonous in speech and thought, shallow in emotion, often fanatic in his identification with some cause, and sometimes given to violent outbursts of anger and hostility. Whether or not the epileptoid personality has anything to do with epilepsy is a matter of debate (Chapter 16).

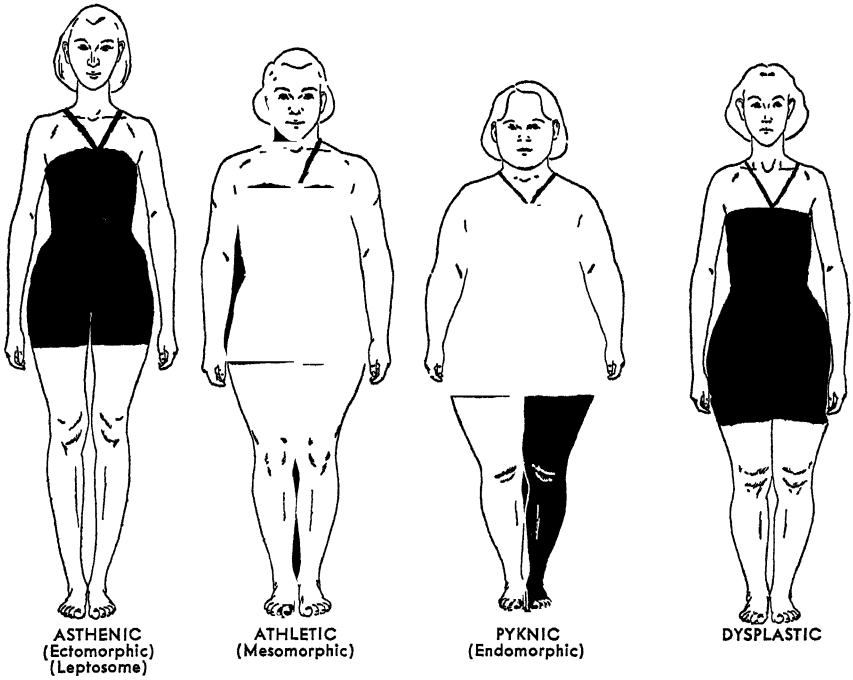


Fig. 2. Types of physical constitution.

There are several neurotic types. The *hysterical* type of person is one who tends to dramatize himself and his affairs. He gives the impression of being shallow, changeable, suggestible, and easily provoked to irrational emotional outbreaks. The *compulsive* character is afraid of his emotions and things that arouse emotions. He attempts to substitute words for reality. He overcomes or conceals a basic tendency to aggressive cruelty by kindness and politeness. He is rigorously clean. He gives the impression of being emotionally "cold." The *anxious* type is the worrier who plagues both himself and others with distressing thoughts of every possible dire result or mishap. His inner tension makes him restless and his inner restlessness is curbed by distraction or stimulation from the outside. He is happiest and works best in noisy confusion. But if really disturbed, then he requires abso-

lute quiet. He seeks reassurance. He vacillates between fearfulness and intimidation.

Another variety of typology is that which relates the psychology or the personality of any person to his physical constitution or body-build. It is commonplace, not only for the psychologist or physician, but for any observant person to say, "That fellow looks like a worrier," or "That woman looks frustrated." Although the experimental evidence for the existence of clearcut differences in physique, which will permit them to be grouped as types, is far from satisfactory, it is, nevertheless, quite common to describe any person, using one or another of the systems which have been put forth from time to time. In psychopathology, frequent use is made of Kretschmer's [8] classification. He divided humanity into four physical types: the *pyknic* (compact, round, fleshy), *asthenic* (slender, long bones, little muscular strength), *athletic* (strong, solid, muscular), and the *dysplastic* (asymmetrical). This last type describes those persons whose physical dimensions showed a conspicuous disharmony due probably to some physiological dysfunction. Kretschmer held that there was a clear biological affinity between the pyknic body type and the cycloid or cyclothymic temperament and manic-depressive psychosis. He believed also that there was a close connection between the asthenic group and the retiring personality characteristic of both the schizoid temperament and of the dementia praecox patient. The athletic and dysplastic groups tended to be associated with the schizoid personalities much more frequently than with the cycloid.

In addition to types which are similar to the disease pictures and types related to physical constitution there are several other personality descriptions or types commonly employed in abnormal psychology.

Introversion-extroversion are terms that were introduced by Jung [7] which have come into popular usage. The extroverted individual is distinguished by his striving toward objects and persons around him, his identification with and his dependence on these objects and persons. The introvert shows a minimum of consideration for the objective world; his fundamental interest is directed toward himself. As Allport [1] phrased it, "The extrovert usually considers the introvert a sick soul; the introvert is often of the opinion that the extrovert is a Philistine and a bore."

Types related to *dominance-submission* also have been of interest to the abnormal psychologist. The dominant person is the one who controls or tries to control the actions of others, who is aggressive in social relationships, and who tends to be a leader. In contrast, the submissive person tends to be unassertive, passive, and controlled by the actions of others. In describing specific varieties of abnormal persons, this submissive tendency or lack of

self-assertiveness is frequently used. It is not enough, however, to know whether the person *acts* in a dominant or submissive fashion. Actually, it is more important to know whether he *feels* dominant or submissive. Dominance feeling, which amounts to high self-confidence, does not necessarily correspond to an actual dominant status with other individuals, and a dominant status does not mean that the person will have a strong feeling of dominance. He may consider himself as very ineffectual, timid, and controlled by others even when this is not the case.

Finally, it should be explicitly stated that there does seem to be a tendency for the appearance of certain combinations of mental mechanisms to be associated with certain types or varieties of physical constitution. The cause and effect relationship of personality and constitution is not too clear but the association is often the basis of our mentally classifying a person as of this or that type.

Systems and theory

Having collected observations, descriptions, or facts the scientist attempts to classify his collection. The basis of the classification is usually determined by the use to which he wishes to put the collected facts. It may be that the facts are logically coherent, but almost always the facts will not fit together; either there are missing facts or facts left over when the classification is reasonably complete, or there are facts which are mutually contradictory. Theory is a step in scientific classification. Speculation, either to explain the way the facts fit together or to predict the nature of new facts, is a method of developing systematic theory. We have emphasized the point that abnormal psychology deals with the unusual—with human behavior and experience not readily understandable. It follows that theories should be ever present in attempting to provide reasonable explanations or directions for further study which may provide explanations. Some have said that abnormal psychology was practically all theory with but a trace of fact. This is untrue. There exists as much description, observation and fact in psychopathology as in any other division of psychology or biological science. It is not far from the truth to say that all of the leftover observations from all of human biology and sociology are mixed in a disorderly fashion and the mixture termed abnormal psychology. But it is possible to systematize this mixture.

Some explanatory theories have been more productive of understanding of the mixed facts of psychopathology than others. No theory is wholly satisfactory. The following presentations of theories include those which are most influential in modern thinking.

Cause, course, and outcome: (Kraepelin)

During the last half of the nineteenth century the great advances in medical science began. In large part this advance was led by pathology. Pathology is concerned with the cause, course, and form of disease. One after another disease yielded its mysteries to the scientific methods of pathology. The essential cause of disease was sought, and in many instances, identified. The natural course of the disease was followed. The effects of various agents were explored to determine their effect on the cause and the course. Predictions or expectations were established concerning the outcome of a disease if it ran its natural course or if the course was modified by some therapeutic agent. All of this analysis and the solution of each problem were made in the framework of biological science. It was (and still is) particularly difficult to apply these biological principles to mental patients. It was complicated by the apparently great individuality of each abnormal person. Two maniacal patients seemed less similar than two tuberculous patients.

Emil Kraepelin (1855–1926) [9, 12], one of the great systematizers of psychopathology, was trained as a physician and as a scientist. Well schooled in both the biological and psychological science of his day, he used his training and ability in the examination and study of many mental patients. He reviewed the case histories of thousands of patients and selected the basic elements from the studies, examinations and histories, in order to formulate the general course of the mental disorders. Kraepelin assumed that the inmates of the asylums were ill; that they were suffering from a variety of diseases and that the diseases were essentially physical (biological) in origin and course. This assumption made psychopathology a division of physical pathology. The delirium of an agitated catatonic patient was considered to be based on physical causes just as is the delirium of the patient suffering from typhoid fever. In either case the cause and course were assumed to be biological and the psychological delirium was secondary to the biological disease.

Kraepelin was interested in the form and types of mental disorders rather than the individual ideational content. He wanted to know *how* the patient thought, not *what* he thought. He assumed that the course of mental disease was predetermined in the same sense that the course of a cold, mumps, or measles is predetermined. If a mental disease is allowed to run its natural course, the result will be that most patients go through a common course of symptoms and changes. At the end, some will recover and others will not. In part the outcome is a function of the *natural resistance* of an

individual, and in part a function of the *morbidity* or destructiveness of the disease. Even in the more deadly diseases such as cholera some patients recover. When he studied the course of mental disease in several thousand

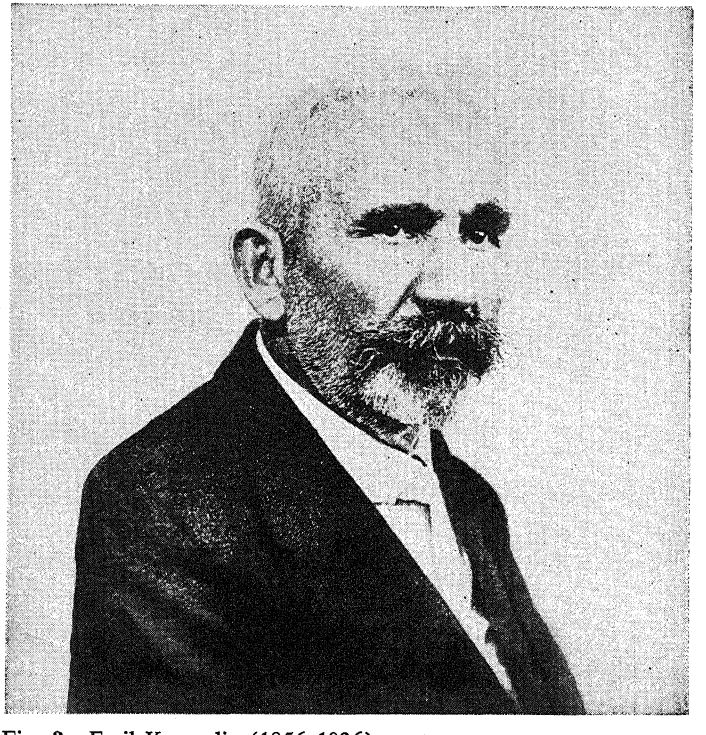


Fig. 3. Emil Kraepelin (1856–1926).

of the younger patients it became apparent that two major divisions could be made. One group tended to recover and one group tended not to recover. Generally speaking the group that recovered showed a fairly typical group of symptoms which symptoms led him to designate the disease manic-depressive psychosis. He announced that this was a disease which ran a cyclic course as a series of attacks of elation and depression, the patient usually recovering between attacks but being subject to the possibility of a recurrence.

He determined that a second large group of mental patients followed a course from which comparatively few spontaneously recovered. This group he designated dementia praecox. It was precocious in that it started early in the life span (age 18–30) and usually led to deterioration or dementia. The symptoms of patients comprising the group differed so that four (or more)

subvarieties of the disease could be distinguished, but all tended to run a course to a common terminal dementia.

Other groups of patients could likewise be distinguished out of the entire mental hospital population. The groups formed the basis for the Kraepelinian classification system of mental disease. During the years between 1895 and 1926 Kraepelin altered and changed his classification and theoretical system of explanation as new facts were clarified and discoveries made. He divided mental diseases into those which were *endogenous* and those which were *exogenous*. Endogenous diseases (for example, dementia praecox) were caused by internal changes and alterations. Failure in structural development, errors in organic functional relationships, errors in internal metabolism, and so on, resulted in interference with organic brain function with or without structural alteration of the brain. The alterations in brain function showed themselves in the disordered psychological experience and behavior. Exogenous diseases (for example, general paresis) were due to the changes in the body brought about by some outside-the-body agent, infection, injury, or the like, which set up a chain of organic responses which involved organic brain functions with concomitant psychopathological symptoms.

Kraepelin's systematic formulation met considerable opposition among his contemporaries and only slowly found acceptance. It was so well grounded in fact that after acceptance the system has not been greatly changed or altered during the past fifty years, and still stands as the official system of classification in most nations of the world. In general, the criticisms of the system have been urged on three grounds; it is fatalistic, it is not psychological, and it is not dynamic.

The notion of fatalism which is attributed to Kraepelin's theory is a misinterpretation of his concept of natural predetermination. Diseases run their course. The problem of medical research is to find how to stop, change, or modify the course. No one knows how to modify the course of dementia praecox; at least not in a rational way. Hence, it was concluded that predetermined meant fatalistic, since nothing could be done to "cure" mental disease. This was, and is, a false chain of logic.

The Kraepelinian system dealt for the most part with psychoses and it dealt with groups of patients, not individuals. The problem of the neurotic person, as we shall see in later chapters, seems to be more understandable in psychological than in biological terms.

The word "dynamic" usually is used in psychopathology to convey an idea of *purpose* or motive which is not the ordinary meaning of the word. When a psychopathologist speaks about the dynamics of anxiety he usually

is considering what purposes or motives the dread serves in the life of the patient. In this sense, the Kraepelinian system is not dynamic. Kraepelin would have held there is no more personal purpose in an hallucination than there is in smallpox.

Development and habit formation: (Meyer)

Ten to fifteen years after Kraepelin announced his system Adolf Meyer (born 1866) [2, 10] developed a theoretical viewpoint which he named *psychobiology*. Meyer was a true student and a great teacher. For many years his viewpoint dominated thinking in abnormal psychology and mental hygiene in America. Meyer himself has written comparatively little but his students have clearly and distinctly set forth his views. Rather than classifying diseases Meyer classified psychopathological reactions or reaction-types. He taught that neuroses and psychoses are disorders of personality which show themselves particularly in interpersonal relationships. The distinction between normal and abnormal is mainly one of the degree of adequacy of adjustment of the individual to the particular life circumstances in which he finds himself. Behavior or personality disorders are patterns of non-adjustive attitudes and responses, gradually developed into habitual and consistent forms.

The unitary activity of each person—his behavior—constitutes the subject matter of psychobiology or ergasiology (from the Greek *ergasia,* meaning work). Disorders of behavior Meyer named *parergasia* (dementia praecox), *thymergasia* (manic-depressive psychosis), and so on. Meyer's particular terminology never found a wide acceptance.

Meyer taught that one must obtain as detailed a life history as possible, since from such a history one could determine what the essential disorders of reaction-types were, how they had started, and what meaning or purpose they had for the individual. In obtaining such a history special attention was given to getting material dealing with the development of instincts or drives, basic moods, habits, memories, ambitions, imagination, and intellect. Emphasis was placed on the determination of the assets as well as the liabilities of the individual, since out of the assets it should be possible to reconstitute and reformulate behavior disorders into adjusted behavior.

Meyer held that at birth human beings are more or less alike in their potentialities, and since the larger environmental pressures of the world about them are more similar than different, the variations in individuality stem from differences in habit formation, in learning, in ways of reaction. Psychopathology is not the study of mental disease but the study of deviant types

of reaction. Similarities in deviant reaction types come from the fact that certain kinds of situations are common occurrences in human society, and, because of the particular set of circumstances, certain common but deviant

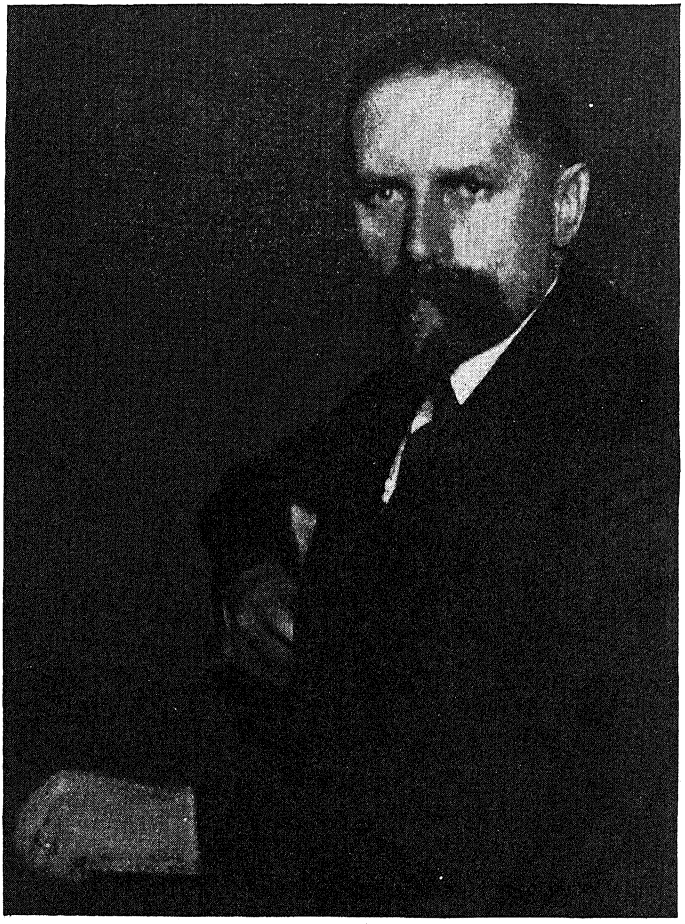


Fig. 4. Adolf Meyer (1866–1950).

habit patterns are established and favored in certain persons. For example, certain children are not too robust; they are carefully guarded, and over-protected; they are encouraged in fearfulness; the fearfulness becomes an habitual attitude or the reaction type of anxiety neurosis.

Prevention and therapy are essentially educational procedures. Proper habit training of the infant by the parents, proper inculcation of adjustive attitudes by the schools, proper religious guidance by the church, together

with proper sex education constitute mental hygiene. Therapy is redirection or reeducation making use of the personality assets to compensate for the personality deviations or defects.

The disorders of behavior associated with organic pathology Meyer regarded as adjustive (or maladjustive) attitudes or habit responses set up by the organic handicap. Sometimes the organic disability is primary and at other times it is secondary. An individual may actually have an organically damaged heart. His attitudes are self-protective. He is anxious and fearful. This part of the reaction pattern is adjustive and hence normal. If he goes further by changing doctors at regular intervals, seeking new medicine, insisting that some member of the family always stay at his side, demanding that the neighbors be quiet so that he will not be disturbed, and so on, then the organic disability has become secondary to a hypochondriacal pattern of adjustment. Meyer held that organic or biological disease is the province of the physician, surgeon, or pathologist, while the correction of behavior disorders, no matter whether they grow out of organic disability or poor education, is the function of the psychobiologist.

The principal criticisms which have been urged against this theory are: (a) there is no evidence available to show that educational procedures oriented in terms of psychobiological theory have resulted in any decrease in psychopathological conditions, and (b) since it is impossible to foresee the adjustments which any individual or group of individuals will have to make in future years, it is impossible to educate for individual attitudes in any other than the most general terms.

Psychoanalysis: (Freud)

The psychoanalytic theory of Sigmund Freud (1856–1939) [4, 5] came from his intensive study of neurotic patients. His theory grew out of his development of a therapy which he termed psychoanalysis. In analytic therapy the neurotic patient is seated or reclines comfortably. He is told, "Tell me anything and everything that comes into your mind. Everything you tell me, or that I tell you will be treated as strictly confidential." The patient reports in this fashion an hour a day, several days a week and for several months. The therapist gives a minimum of direction or comment to the reporting. In such fashion the patient talks out and analyzes his own thoughts, attitudes, troubles, and complaints.

It became apparent to Freud that a great deal of the patient's report, his attitudes, and his emotional life did not come from his ordinary conscious life, though the material was clearly part of his life. Not being part of the

patient's consciousness Freud assumed that it came from the unconscious. He further assumed that the unconscious was fundamentally dynamic and that it determined much of conscious behavior. The unconscious was not

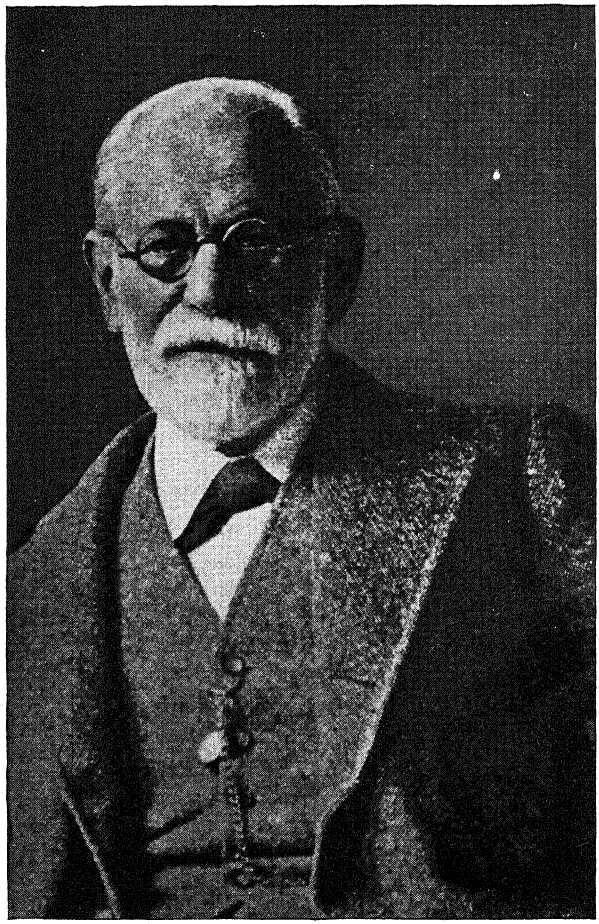


Fig. 5. Sigmund Freud (1856–1939).

logical, it was not organized in terms of time or space. It was spontaneous, shifty, contradictory, unorganized, primitive, and demanding. But it drove the individual.

Later Freud made the assumption that the mind was divisible into three parts; namely, the *Ego* ("I will"), *Superego* ("One must not"), and *Id* ("It wants"). The Ego corresponds to that which we usually speak of as self, or conscious experience and awareness as we know them in our everyday life.

The Superego corresponds to the usual ways in which we use the word "conscience." The Id is the part of the mind which we would ordinarily speak of as "the unconscious" but to which Freud attached certain specialized meanings. He held that in the Id are found all of the dynamic forces of human existence which are ordinarily called motives, urges, wishes, drives, yearnings, and instincts. The generalized dynamic force of the Id he termed *libido,* which he defined as that force by which the sexual instincts are represented in the mind, or the energy of those instincts which have to do with all that may be comprised under the word "love." The ways in which the libido shows itself in the conscious life of the individual he referred to as instincts, meaning the general tendencies toward expression which are common in all human beings and grow out of the psychosexuality of the individual.

Since many of the instincts or wishes which grow out of the Id are either mutually contradictory or are inhibited in their expression by moral and ethical considerations, there is set up in the unconscious life of the person a *conflict.* These conflicts give rise to many of the symptoms and abnormalities of mind and behavior shown by the person suffering from some mental disorder. They also show themselves in various ways in the everyday life of the normal person. Conflicts can be easily observed and analyzed through the study and interpretation of dreams as well as in the free reporting during analysis. It has been found that in dreams many common elements, ideas, concepts, and figures of speech refer to rather simple wishes or instincts which have come into conflict.

These conflicts which are derived from the Id itself or grow out of instinct repression by the Ego or Superego give rise to the mental mechanisms. (The term mental mechanism is used by the psychoanalysts in the second sense that was employed earlier in this chapter.) Mental mechanisms are mental defenses by which the mind mitigates the conflict between the drives of the Id and the relentlessness of external reality.

Freud's theory and its logical development permeated speculation and formulation in the fields of normal psychology, anthropology, and sociology. He provided a workable hypothesis which had obvious applications. Because of the application and acceptance of Freudian theory he has had a greater direct influence on both scientific and popular thought and belief than any other psychologist or physician of the past century.

It will be apparent in chapters which follow that Freudian theory does not offer a separate or distinct explanation for many psychopathological phenomena that are still obscure and unreasonable. During his lifetime Freud continually modified and changed his theory as new facts became

apparent. His followers have further modified the entire concept. Freud once commented on his own work saying, "One might ask me whether and how far I am convinced of the assumptions here developed. My answer would read that I am neither myself convinced nor do I ask that others shall believe them; or better stated, I don't know how far I believe them."

Psychoanalytic theory and method have contributed insight into the subjective life of neurotic patients and normal persons. The psychoanalytic theory has met wide criticism. Probably the most important and apparent points of criticism are: (*a*) its lack of reference to and coordination with other scientific thought and fact, (*b*) its assumption that the unconscious is very similar in every person, and (*c*) its assumption that sexuality (libido) is always the sole or even the most important determining and driving factor in individual development.

An eclectic viewpoint

It is apparent that the theory of Kraepelin, of Meyer, and that of Freud really do offer, each of them, a systematic basis for the formulation of the problems of abnormal psychology. It is also apparent that each theory is vulnerable to certain basic criticism. There are literally dozens of other theories which could be presented, all of value and all equally vulnerable. It is safest, easiest, and best not to adopt or hold fast to any one systematic viewpoint. The simplest working hypothesis to be assumed by the student who is beginning his study in this field can be stated somewhat as follows: Some human beings are born with physical or psychological weaknesses or defects which *permit* them to acquire a mental disease or a physical disease if the proper circumstance, infection, trauma, or stress occurs. If none of these events happen, then the person will go through life without developing the particular disability. For example, a native of some island in the South Pacific might be born with a physiological lack of resistance to tuberculosis. So long as he never came in contact with any person who had tuberculosis, he could never develop the disease. If he did come in contact with a tuberculous person, he might develop the disease, depending on his general health and other factors which operate for or against infection. For many varieties of mental disorder, it seems that the individual must have the constitutional potentiality before any circumstance can provoke a derangement. For other varieties of mental illness, there is little or no evidence of any innate predisposition. In general, one may assume, unless good evidence is presented to the contrary, that most psychoses develop on the basis of some constitutionally determined susceptibility.

Having assumed that certain persons may (if circumstances permit) become "abnormal," while others cannot, the student should next consider what circumstances favor, promote, or discourage this or that kind of abnormality. Next he should try to find what ways have been found to prevent, alleviate or cure the abnormality. Finally, he should try to understand the mental life, the private subjective experience of the abnormal person. If the student can maintain an open mind, free himself from prejudice and bias, and from erroneous ideas he will find that much of abnormal psychology becomes reasonable and much, though not all, of psychopathology becomes comprehensible.

Summary

Abnormal or unusual things occur in the mental life and in the behavior of some people. There are certain common elements in these occurrences. They seem unique and inexplicable to the person and his associates but actually they occur frequently enough to be commonplace in psychopathology. As a usual thing the person experiencing the unusual, reacts in fairly predictable ways. These ways are termed mental mechanisms. The particular mechanisms exhibited are in part determined by the individual's personality type.

Three theoretical systems of explanation are in vogue in the field of psychopathology. These were formulated by Kraepelin, Meyer, and Freud. All are of value; all are open to criticism. An eclectic viewpoint is suggested. This viewpoint assumes (*a*) constitutionally determined susceptibility, (*b*) circumstances which permit or prevent the development of the consequences of the susceptibility, (*c*) the inspection of the means of prevention or alleviation of the development, and (*d*) the understanding of the private mental life of the abnormal person. The particular merit of this viewpoint is that it permits thinking about the problems of abnormal psychology with a minimum of bias and bewilderment.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 4 Physical Illness

THERE ARE CRITERIA FOR A JUDGMENT AS TO WHETHER A PERSON IS normally healthy. These standards do not imply or involve perfection or some ideal state; rather they describe the usual status of the ordinary person. Basically the healthy person has (*a*) a satisfactory capacity to work. He enjoys his work (within limits); he is not unduly fatigued by it; he feels no necessity for a frequent change of job; and he maintains his own personal optimum of efficiency. (*b*) He is not hampered by "senseless" or unduly prolonged emotional conflicts. (*c*) He is able to make decisions without too much stress or delay. (*d*) He finds pleasure in ordinary social, parental, or marital relationships. (*e*) He can understand the emotional needs and viewpoints of others and make the usual responses to them. (*f*) There is little or no interference with his ordinary life by physical ailments which are unduly painful or disabling.

No one meets all these criteria completely or continuously. The extent to which one fails to meet them is the extent of one's unhealthiness.

Concept of disease

The word disease is composed of two parts, "dis–ease." It means lack or absence of ease; uneasiness, pain, distress, trouble, discomfort. Through the centuries men—usually physicians—have found that combinations of complaints (symptoms) tend to occur together or in some sequence. These combinations they called diseases. Such classifications are purely matters of convenience. Some diseases are descriptions of what happens when the organism comes in contact with injurious agents such as bacteria or poisons. Others describe what happens when a structural change takes place in the body such as an ulcer or cancer. Still others describe the course of com-

plaints that usually have the same course and outcome with or without an established organic component. Diseases may be either, or both, organic and mental. As a general thing we think we can understand most of the behavior and mental life of the person who is undergoing an illness which has a fairly obvious physical component, but if this organic component is missing we have more difficulty in comprehending the trouble and so are apt to call it abnormal. In many instances there is no essential difference between the psychological states of the patient with an obvious physical ailment and the patient without the physical component; for example, the depression of the patient with a cancer and that of the mental patient who has "committed the unpardonable sin."

Actually disease does not exist as an entity—rather there are sick persons who have common symptoms. Symptoms are symbols. Symptoms may be words, feelings, behavior, or organic changes; "I have a headache," the mute support of the bowed head by both hands; the elevation of body temperature as shown by a thermometer. No symptom of and by itself is meaningful. As it occurs in combination with other signs and indicators it attains meaning and adds to our comprehension of what is wrong with the patient.

Let us consider, as an example, the matter of pain. A person presents himself with a pain located at some particular spot in his body, and this pain as a sign or symptom may help greatly in leading to a clinical diagnosis; but are you dealing with this pain as an isolated symptom? Most assuredly you are not. The patient is dealing with something from which he is suffering and you must deal with something he is suffering from, not as an isolated knee or neck, but as a whole personality. The patient has this pain in his knee or in his neck, but that is not all; he is experiencing this pain with his whole being. And how he will "take" this pain, what he will make of it, and how he will respond to it will depend on a number of factors. The important thing is to gain an understanding of how a person "takes" a pain or any other symptom; in short, how does a person "take" a disease? Quite obviously, this will depend in part upon the pain and upon its location within the suffering patient, but beyond this, it depends very largely upon who the patient happens to be and upon the situation in which he happens to be at the time . . .

Let us consider the person who becomes sick. The first change in that person may be one of structure associated with or followed by a change in function, or the functional change may come first with the alteration in structure a subsequent phase of the process. In either instance, a change in the behavior of the person inevitably occurs. He finds that his behavior has undergone a change, not only in the outward manifestations of his behavior towards his environment, but also within himself. He finds that he is experiencing in a different way; he is experienc-

ing something which to him is new, specific and particular. According to his individual make-up he may take this change more or less seriously. This change may not lead to his placing the greater emphasis on his pain, his feeling of weakness, insufficiency, exhaustion, or bleeding, or on his broken leg or whatever he may have, but rather will the change concern his experience. He will experience whatever it may be that is going on within his body and he will be greatly influenced in his whole behavior, in his whole experiencing, far beyond the mere locus of the pain in his knee or his neck. The change which is taking place, that is, the physical functional and structural changes, may evolve with relative slowness, but even so they will be reflected in both the behavior and the experience of the person. According to the make-up of the person and his immediate situation, the response will differ if he is suddenly withdrawn from his full capacity to work or if he notes a more insidious change—a gradual increase in the tendency to become fatigued, and an occasional chilly sensation, a headache, or other things of the kind. Here, again, it is noteworthy that different people respond to all of these occurrences very differently—all of you have known people, fortunately, not too many, who practically break down under a very slight malaise while you have known many others who have passed, with flying colors, through extremely serious diseases, even refusing to strike the flag in face of death. Always the individual experiences his disease—a broken leg, a pneumonia, a psychiatric disturbance of some sort, or whatever it may be—as himself and as a person, and in a situation and to the situational factors he must always of necessity respond in accord with his assets and his liabilities.*

Psychology of the sick person[4]

There are many factors and great individual differences involved in the transition between being a well person and being a patient. Once a person admits the fact that he is ill there are distinct psychological changes. The world of the patient becomes small. Events and persons formerly important become ineffective and relatively meaningless. Behavior is influenced by the doctor, nurse or wife, by physical conditions such as the softness of the bed, and by a few needs such as rest, absence of pain, food, and medication. In this, as in other respects, the patient's behavior resembles that of the infant.

The social world of the sick man becomes egocentric. Others attend to his needs and comfort. His complaints are tolerated; his tantrums pacified. Reality is no longer demanding. Except for the illness, reality is accommodated to his demands in a fashion that has not been true since he was an infant.

As the patient's world shrinks and external reality becomes less imperi-

* E. Kahn, "Some Aspects of the Normal Personality Experiencing Disease." *Yale Jour. Biol. Med.*, 1941, *13*, 398–399.

ous the internal determiners of behavior gain in importance. The healthy person is mostly unaware of his own physiological processes, but the sick man attends closely to his temperature, pulse, digestion, and other physiological processes. These inward events are to him much more important than events in the outside world. This concern with his body is similar to that of the young child.

In large part because the patient's situation is like that of an infant—a small, egocentric world dominated by consciousness of his own body—other infantile behavior follows. His interests become narrow. He is "provincial" where he was formerly "cosmopolitan." He becomes domineering, intolerant, and selfish. These traits may be direct or subtle; but trading on his illness gives the patient great power over those who care for him. This in turn often leads him to be apathetic and disinterested since his small, devoted world does not force him to accommodate himself to others or to external reality. He will become dependent and insecure. He is at once grateful for the nursing care and resentful because of his dependence. He is fearful and hypochondriacal. What the outcome of the illness will be, he is not sure. He feels he must attend to and care for his own body since inattention may bring dire results. He is the center of his own attention. His thoughts, conversation, and emotion stem direct from his bodily sensations.

Convalescence and chronic disease

Not much systematic knowledge is available concerning the psychological changes which take place in convalescence or which accompany the transition from acute to chronic illness. As the immediate illness passes away doctors, nurses, relatives, and friends usually act on the assumption that the infantile behavior will evaporate. It is realized that the evaporation cannot be forced but that it must be encouraged. The problem is somewhat similar to that which faces the adolescent who desires freedom and independence but at the same time is uncertain of himself and his place in the everyday world. Most adolescents and most convalescents find their way into the adult world. A few are greatly delayed or fail to make the transition.

If the illness itself has been long, if the illness has left a disability, such as a rheumatic heart or loss of sight, if during illness one's employment has been lost or the family situation has changed then social service, vocational guidance, and the other facilities of a rehabilitation clinic may be sought. (Unfortunately there are not nearly enough such rehabilitation facilities to handle the ever increasing load resulting from medical advances in the saving of lives.)

The mental life of the chronically ill person relates both to his symptoms (disease), his social, family, and economic situation and to the attitude of the community toward the disability from which he suffers. Examples of these chronic states will be found in this and succeeding chapters.

That psychological changes go with all varieties of acute and chronic illness as well as convalescence is apparent. Of direct interest to the psychologist is the mental or temperamental states which have been thought to be related to certain well-defined and rather common ailments. The grouchy ill-humor of the choleric temperament has long been said to be associated with liver disorders; irritable pessimism with dyspepsia; and euphoric optimism and a sanguine temperament with respiratory complaints, such as pulmonary tuberculosis. In order to deal adequately with all of the mental peculiarities which are said to accompany one or another of the physical diseases, it would be necessary to go through all of the ailments known to mankind. Such thoroughness is not in keeping with this presentation of abnormal psychology. We shall, therefore, confine ourselves to a consideration of the mental deviations which are associated with cardiac disease, pulmonary tuberculosis, peptic ulcer, and asthma.

Cardiac disease

Weiss and English [15] have made the point that in spite of the great incidence of cardiac disease the majority of patients who have symptoms referred to the heart region do not have real organic heart disease. They point out that for centuries the heart has been called the seat of the emotions and so serves as a focal point for anxiety. As a symbol of love the valentine is heart shaped; we say "loving with all my heart." In joy we are "light hearted," in sorrow "heavy hearted" or "my heart grows weary." In disappointment we suffer from "heartache," in grief we are "heartsick." But the heart is a very stable sort of organ and when it is actually organically damaged there are wide differences in psychological reactions varying from panic to complete disregard.

Many studies have been made of the mental correlates of cardiac disease. Some of them were case reports of seriously ill adults who appeared to be either neurotic or psychotic during the acute phase of their illness. The main neurotic symptoms observed by psychiatric and psychoanalytic investigators in chronic cardiac patients included claustrophobia (fear of closed places), exaggerated dependence on parents, generalized emotional disturbance, anxiety, guilt feelings, and even panic. When it is borne in mind that actual heart disease is a very serious disability, one can realize that the person who is experiencing anxiety or guilt feelings without a conscious or

rational basis is apt to respond unduly to skipped heart beat or a twinge of pain in the chest.

On the other hand several investigators have emphasized that many patients with cardiac disease are not truly aware of the seriousness of their condition. Such patients minimize their symptoms and keep on with their usual activities against the advice of their physicians. Cases have been reported in which serious organic heart disease occurred with no definite correlation between the seriousness of the disability and the subjective experience which might have been expected to accompany the illness. Other investigators have found little evidence of any real emotional or social difficulty which could be directly attributed to the cardiac disease itself; rather, the psychic disturbances which occurred were ascribed to the recognition of the handicap by the friends and relatives and not by the patient.

Landis and Bolles [10] made a study of twenty-five women suffering from chronic cardiac disease of differing degrees of severity. They found that these patients gave evidence of being either very well adjusted to their environment or very poorly adjusted with but few intermediate cases. No special physical or psychological concomitants were observed in those persons who were extremely depressed or hopeless. When the cardiac patients were compared to other types of physically handicapped women, more of the former reported feelings of fear without explicable cause, conflict between their parents, and daydreams about romantic relationships and situations. The basic personality structure of cardiac patients was, in general, very similar to that found among other handicapped patients. The most outstanding trait found in all of the handicapped was their emotional infantilism and immaturity. This immaturity may have been due to the deprivation of normal patterns of experience and expression because of the chronic nature of the disease, or it may have been a reaction to the social circumstances surrounding a handicapped individual.

Case history

CASE 1: Miss D, aged twenty, came from an Irish Catholic home. She described her parents as quiet and easygoing and as never having used strict discipline with their children. Her first attack of rheumatic fever came when she was six years old, and since then there had been recurrent attacks practically every spring and fall. These illnesses required protracted care and treatment in hospitals and convalescent homes. When interviewed she said that the two preceding years constituted the longest time that she had been home continuously since she was six. She felt completely well at the time of the interview and said optimistically (?) that there was not anything that she could not do.

She had never had any close girl friends at any period of her life. She used to play with children before she started going away to convalescent homes; but later, in order to avoid embarrassing questions, she shunned acquaintances. She did not like demonstrations of affection and could not bear to have others (including members of her family) put their arms around her. She had never been out with a boy and did not think that she would be interested in having a date.

She spent her time either sitting idly at home or going for walks by herself, not caring for reading or motion pictures. Her mother did not allow her to help with the housework. When asked what her greatest desire for the future was, she said, "Nothing. I don't know because I don't look to the future." She felt that having been sick so much of the time and being in and out of hospitals had made her indifferent to what happened to her.

Although she said she disliked "hanging around home" she had never made any effort to form friendships or develop outside interests. Her attitude did not result from an overly strong attachment to the parents. Rather it was a very deeply rooted habit of invalidism which did not change even when there was a definite improvement in her physical condition.[10]

The apparently identical twin sister of Miss D had also had severe rheumatic heart disease and had spent a great deal of her early life in convalescent homes. This twin, however, stopped going to the cardiac clinic because she felt that she was getting no help from it. She could not be induced to give information about herself because she did not want to have anything to do with doctors. She was giving most of her time to the search of a job so that she could be independent of her family. In spite of the similarity in the nature of the handicap, early history, and family background of these twins, the difference in the form of their rebellion to authority calls attention to the individuality of such patients. Other surveys of the attitudes and character traits of cardiac patients have shown this same point; namely, that the individuality of the person is more important than his heart disease so far as the personality development is concerned.

Pulmonary tuberculosis

The psychopathology of the tuberculous patient is variable and complicated, since the illness frequently occurs at the prime of life and for the most part is not accompanied by pain or discomfort. Treatment involves months of complete rest in bed. Consequently there is plenty of opportunity for a tuberculous patient to develop a variety of psychological reactions and complex character deviations. Traditionally it has been claimed that their outstanding characteristics are undue euphoria, increased sex urge, and

increased intellectual acuity. There is, however, a wide difference of opinion and much contradiction among the reports dealing with the psychology of the tuberculous patient.

There are more than a half million persons with active tuberculosis in the United States. Over 75 per cent of them are between 25 and 45 years of age. In order to recover they must renounce ambition and activity for months or years and must in one way or another shoulder heavy financial responsibility and the problem of vocational and social rehabilitation when they recover. Whether they will recover is, for good reason, an ever present problem in their mind. The tuberculous offer the psychologist a group of persons who are under continuous threat of early death, plus frustrated hope and ambition and real, unfavorable social discrimination. Those social and psychological factors said to favor "mental breakdown" are all present.

Relationship between tuberculosis and mental disease

It is a fact, borne out by statistical reports from many countries and from many different periods of time, that mental hospital patients show a high death rate from tuberculosis. This observation has created a great deal of speculation and investigation concerning the possibility of some cause and effect relationship or association between mental disease and tuberculosis. These investigations range all of the way from opinionated recountals of hospital superintendents to actual psychiatric studies of large groups of tuberculous patients. It has been found that 10 per cent of dementia praecox patients (See Chapter 10) have tuberculosis while only 3 or 4 per cent of other mental patients have this disease, no matter what their mental disorder may be. An explanation which has been advanced for this association is that the dementia praecox patient is inactive, given to shallow breathing, and leads a vegetative sort of existence. This lack of activity might possibly make the patient more susceptible to tuberculous infection or lower his resistance to an old, inactive lesion.

In a study of 308 tuberculous twin families including 308 tuberculous twin index cases and their cotwins, as well as 930 brothers and sisters and 688 parents of patients, Kallmann and Reisner [8] established that in any family group the chance of developing tuberculosis increased proportionally to the degree of blood relationship to an active tuberculosis case. The occurrence of tuberculosis in both twins was found in 87 per cent of identical pairs and in 26 per cent of fraternal pairs, while the tuberculosis rate of the brothers and sisters was found to be 26 per cent, that of half-brothers and half-sisters 12 per cent, and that of parents 17 per cent. Under conditions

of ordinary exposure to possible infection, these relationships were shown to be independent of age, sex, race, degree of exposure to other tuberculous patients, or any special environmental factors. These findings indicate that whether or not any person will develop overt tuberculosis under ordinary conditions of exposure depends on the bodily resistance of that person as determined by a "multifactorial genetic mechanism." The fact that fatal tuberculosis does occur more frequently in mental patients who are suffering from dementia praecox than would be expected by chance was also shown by Kallmann and Reisner to rest on genetic phenomena. In all probability certain nonspecific genetic factors involved in both tuberculosis and dementia praecox act to lessen an individual's resistance to either disease, although the diseases themselves are not genetically related. All of this may be summarized by the statement that tuberculosis and the mental disease, dementia praecox, do have a close biological association but that there is little evidence that the mental reactions going with either ailment have a causal relationship to the other disease. Anxiety about one's tuberculosis does not lead to the mental symptoms of dementia praecox, nor the hallucinations of the schizophrenic patient to tuberculosis.

Effect of tuberculosis on the mental life of the otherwise normal person

All sorts of claims concerning this relationship have been made. Munro[13] stated that the disease had a specific influence, going so far as to say that "there is no disease in which the mental and moral characteristics of the patient are so profoundly modified and with which psychoneuroses are so constantly associated as chronic pulmonary tuberculosis." He claimed that there was a definite relationship between the severity of the disease and the degree of mental abnormality, since he interpreted the psychopathology as the result of a prolonged intoxication set up by the *tuberculosis bacillus*. Knopf,[9] on the other hand, defended the tuberculous patient against the claim that the disease leads to mental abnormality. According to his observations, tuberculosis occurred only as might be expected on the basis of chance in patients who were clearly psychotic or neurotic before the onset of the disease. Banister,[3] after surveying a fairly large group of tuberculous patients, reported that he had found no mental disorders which were the direct consequence of tuberculosis. Mental abnormalities which did arise in these patients were considered by him to be expressions of maladjustments such as occurred in any nontuberculous individual.

In a study of 755 tuberculous patients Eyre[6] found there were 87 who

had been classified by the medical staffs as troublemakers, despondent, "nuts," or "crazy." Investigation of these 87 indicated that their abnormalities of behavior might be completely explained by the disturbance in personal relationships, financial burdens, social segregation, and long duration of the disease. She concluded that the deviations could not be considered as essentially psychotic or neurotic of themselves.

A survey and summary [4] of the pertinent studies lead to the following conclusions: (*a*) There is no unique tuberculous behavior; rather there is a great variety of behavior shown by tuberculous patients. (*b*) Anxiety, mild neuroticism and neurasthenia, and discontent seem to be somewhat more frequent than in comparable healthy populations. Euphoria is infrequent. (*c*) Not much data concerning the sex urge is available but what there is does not support the theory of an increased sex drive. (*d*) Tuberculosis may be associated with a slightly increased level of intellectual functioning.

Spes phthisica *

A mental exaltation or euphoria which has been said to occur in tuberculous patients is called "spes phthisica" and has been commented on in the medical literature since the middle of the seventeenth century. Estimates of the incidence of this euphoria have varied from 1 per cent to 75 per cent of all tuberculous cases. Indeed, Clouston in the 1860's held that 3 per cent of all cases of consumption developed what he called "phthisical insanity" which he interpreted as a type of manic-euphoria of a truly psychotic origin.

The existence and nature of spes phthisica are questionable. There is no evidence that when this sort of euphoria is observed it is directly referable to the type or extent of the disease. Most investigators who have made a special point of studying this symptom are inclined to believe that it is not a true euphoria or optimism but an overcompensatory reaction in an attempt to bring relief from internal anguish. It is a disguise for fear. It is a way of reassuring physicians, nurses, friends, and relatives in a painful situation in which the patient himself is basically depressed and despondent. The overcompensation for very real fear has been misinterpreted as undue euphoria by uncritical observers.

Effect of emotion and stress on tuberculosis

The mental attitudes of tuberculous patients have been investigated by use of both psychiatric and psychometric approaches. In a psychiatric

* Pronounced "space tiz-e-ka."

study [14] of a group of seventy-five patients selected at random from various economic, social, cultural, and age levels it was found that these patients were neither particularly introverted nor extroverted before the onset of the disease. When the patients first learned that they had tuberculosis, their reactions were diverse—some were reasonable, some anxious, some very depressed, some rebellious; some were suicidal, some accepted it as God's will, and some were relieved because they no longer had to work while feeling ill. The predominating mood of these patients was either depressed or fatalistic (making the best of it). After they knew the nature of their illness, only a few ever had periods of elation or euphoria.

The treatment of pulmonary tuberculosis emphasizes rest and inactivity, allowing the patient months with little to do. With so much idle time it might be expected that the fantasy life of these patients would be very rich. Actually, it has been found to be neither deep nor complicated but of a simple, compensatory nature. It does not in any way resemble the tendency to fantastic daydreaming which is typical of the psychotic patient.

The most persistent and consistent emotional state which various investigators have identified in tuberculous patients is apprehensive anxiety or fear. Some of these fears are specifically directed, others are generalized. Many of the patients are fearful of their reception by their friends and families after their return from the hospital. Each patient knew one or two stories of the cold reception accorded to some one whose disease process had been arrested. For the most part the stories conformed to type and the following are examples:

"Just as he was about to go home, he received a telegram from his brother telling him not to stop in on his way home, as they were afraid for the children." "The day upon which she was to be discharged, her sister wrote her offering to pay her board somewhere else, but telling her not to come home." These stories distress the patients and are kept in mind. They serve to further the idea that tuberculous patients are a people apart. One of the patients, a young economics teacher in a university, remarked that he would leave the hospital within the next week and would immediately go West, not stopping to see his friends, even though he wanted to visit them very much. He said, "I would like to have dinner with some of them, but I fear that they would be careful with the dishes I had used and I could not stand that." Another man who was socially prominent said: "I could never go home again. My wife comes to see me and does not even shake hands with me. My aunt stopped coming to our house when she heard I had t.b." Another person remarked: "Just now I hate society and wonder if it will shun me when I get out." A Jewish boy said: "If you have t.b. people will shun you. They do not know what they are afraid of, but they are afraid. I have lost my dearest

friends. Even my adopted brother has dropped me, and we were very close during childhood." One attractive girl who had studied nursing and was an "arrested case" felt that she could not go back to her home town again as people would be apt to avoid her. She said: "That would kill me." Some of the patients kept their whereabouts secret and did not intend to tell anyone of their illness. Some intended to start anew in another locality. Several patients bewailed the fact that there was not some place to which recovered patients might emigrate, since there no one would slight them or ask questions.*

What may seem like psychopathology in the tuberculous person during his illness, or more particularly after he has recovered and returns to society depends very largely on the situation in which he finds himself and the reactions of other people toward him. (*a*) His physical strength and vitality are lower than normal which often means he must find a new vocation. (*b*) Although he badly needs a job in order to live, many employers will not employ an arrested tuberculous case. Employers fear he may spread infection; he will require special privileges; he may relapse and ask compensation. (*c*) The family, friends, and acquaintances of ex-patients tend to ostracize them. (*d*) The ex-patient does not look ill or weak but he must follow a careful "lazy" existence while he is in the prime of life and should be most active and ambitious. He sees others of his age achieving much and reaching desirable goals for which he dares not compete.[4]

These and similar factors bring out a variety of responses; some "retreat from reality"; some become depressed, others cynical; some lose hope, others battle on. Their "abnormal" reactions are understandable by anyone who pauses to consider their problems.

Peptic ulcer

Peptic ulcers include ulcers of the stomach and the duodenum. They constitute both a medical and a psychological problem. The basic reason for peptic ulcer is unknown. From a physiological standpoint such ulcers are due to the assault of the normal acid-pepsin of the gastric juice of the stomach on the gastroduodenal tissue and to the failure of the tissues to defend themselves against the action. They have been shown to follow infectious diseases, traumatic head injury, nutritional deficiencies or disturbances, and exposure to certain chemical substances such as lead or chromium as they are used in industry. They also may be found to be associated with emotional stress, fear, anxiety, or tension. Their treatment may be surgical, medical, dietetic, or psychological, or some combination

* E. A. Strecker, F. J. Braceland, and B. Gordon, "Mental Attitudes of Tuberculous Patients," *Ment. Hyg.*, 1938, *22*, 538–539.

of these. The problem of peptic ulcer from the psychological standpoint is its relationship to the general emotional adjustment of the individual and the type of person who may develop ulcers.

The association and interrelation of emotional states and gastric function have been described by Wolf and Wolff [16] who studied groups of ulcer patients and made an intensive study of a single individual which may be summarized as follows:

CASE 2: Tom was aged fifty-six when this study was made. At the age of nine his esophagus had been occluded by drinking scalding-hot clam chowder. Ever since that age he had fed himself through a fistulous opening which had been made through the abdominal wall and the wall of the stomach. A collar of gastric mucosa, derived from the lining of the stomach, extended around this fistula making it ideal for direct observation. Tom was in excellent health, rarely having any digestive complaints. He was shy, sensitive, proud, stubborn, and slightly suspicious. He was funloving but very conscientious. The fistula and the collar of gastric mucosa permitted study of the effect of emotion and of changes in everyday mood upon the stomach itself.

Emotionally charged situations were not experimentally produced, but advantage was taken of the spontaneously occurring life situations, problems, and conflicts in order to make the observations. On one occasion Tom suddenly experienced intense fear when an irate doctor entered the experimental room in search of an important hospital record which had been lost. Tom feared that he had mislaid it and might lose his job as a consequence. There was a prompt and decided pallor occurring in the gastric mucosa and a fall in the rate of the acid production of the stomach. A minute later the doctor found his paper and left the room, whereupon the gastric mucosa regained its former color and the acid secretion resumed. Sadness, dejection, and feelings of self-reproach were accompanied in this subject by a taciturnity, lack of energy, slowness of movement, and by a pallor of the gastric mucosa. Even the stomach's normal response to ingestion of food was inhibited when he was depressed. On another occasion a member of the hospital staff entered the experimental room to discharge Tom from a job which he had been doing for this doctor after hours in order to earn extra money. The doctor complained that he was slow, ineffective, and that he charged too much. Tom had taken a good deal of pride in his conscientious attitude toward his duties and resented the charges. When fired, he accepted the situation, but he quickly showed a reddened and engorged mucosa. Acid production accelerated sharply and vigorous gastric contractions began.

When Tom's stomach was engorged and turgid, which occurred whenever he was anxious, hostile, or resentful, he complained of heart burn and abdominal pain. At such times it was possible to demonstrate experimentally that the tissues in the stomach wall were more sensitive to pain; and susceptibility of the mucosa to injury which resulted in slight bleeding was found to be greatly enhanced.

Vigorous contractions of the stomach itself produced bleeding points around the exposed collar of mucosa. Ordinarily, these small bleeding points were quickly covered with mucous and healed uneventfully in twenty-four hours or less. The failure of any of these lesions to persist to form a peptic ulcer was due to the effective protection afforded by the secreted mucous. If efforts were made to wipe away the protective mucous so that the bleeding point was repeatedly subject to the action of fresh gastric juice, an area of erosion was set up which took longer to heal.

Emotional conflict, in which anxiety, hostility, or resentment occurred, induced in the stomach profound increases in motility, secretion, and engorgement of the tissues. It was thought that the reason that Tom never acquired a true peptic ulcer was due to the fact that his emotional conflicts were relatively transitory. He was not the sort of person who harbored grudges or maintained emotional stress for long periods of time.*

Since the emotional reactions were clearly followed by bleeding points, it has been inferred that such emotionally charged situations may be directly involved in the genesis of peptic ulcer. That one person develops ulcers while another does not, seems to depend upon whether or not the individual is emotionally upset for long periods of time and whether the protective mechanism of mucous secretion is adequate in its functioning to allow for healing when small erosions do take place.

The personality and emotional reactions of a group of unselected patients suffering from peptic ulcer were studied in detail by Mittelmann, Wolff, and Scharf.[11] They found that the personalities of these patients were of various types and that the incidents precipitating the emotional reactions were numerous. Reactions of intense anxiety, insecurity, resentment, guilt, and frustration occurred in all individuals studied. Such reactions led to compensation through an effort to bolster their self-esteem, by a show of independence, self-sufficiency, and perfectionism. The personality disturbances were of such long duration that the peptic ulcer of itself seemed only incidental to the major emotional conflicts. The onset of the ulcer symptoms and the occurrence of some unusually severe emotional reaction frequently took place at the same time. The situations which were associated with the gastric symptoms were not necessarily dramatic or of a critical nature, but they had important effects upon the patient because they occurred when he was already in an emotionally disturbed condition. In experimental situations it was possible to induce emotional crises which precipitated gastric symptoms at times when the patient had been free of such symptoms. On the other hand, when an experimentally disturbed patient was systematically

* H. G. Wolff, "Emotions and Gastric Function," *Science,* 1943, *98,* 481–484.

reassured, a feeling of emotional security was created which often led to a prompt remission of the gastric symptoms.

In a study of 208 cases of duodenal ulcer Morrison and Feldman [12] reported that most of the patients were not psychologically well adjusted, partly because of constant annoyance with diets, but mainly because of pain or discomfort from the gastrointestinal region. Lack of rest explained much of their inability to meet situations, while loss of self-confidence and failure to perform a satisfactory day's work were contributing factors. Many of the patients were discouraged over recurrences of the ulcer after supposed cures. Because of restricted activity and diet some patients became more and more introverted; others were very keen and alert, giving the impression that they were overcompensating for their restricted life by doing certain things exceedingly well.

Alexander [2] and his coworkers have advanced a speculative hypothesis to account for a variety of gastrointestinal disorders. Their hypothesis grows out of psychoanalytic study of certain patients suffering from gastric complaints. The gastrointestinal tract, because of its three major functions of taking in, retaining, and eliminating is thought to be expressive of three infantile emotional tendencies: desire for security and sustenance, desire to spite the parents by retaining (constipation), and desire to give freely to gain approval (diarrhea). The infant and young child are dependent on the mother both for security and sustenance. The adult who is striving for independence and power will, when overwhelmed by circumstances, desire (unconsciously) infantile security, affection, appreciation, and care—that is, a need to be fed. This cannot be consciously admitted so he overcompensates by greater energy and endeavor. In this the stomach is called on to serve a double function, the reception of love as well as the organ of digestion. This leads to gastric overactivity and excessive secretion of gastric juice which in turn sets up the gastric erosions or ulcers.

An experiment which illustrated the effect of group psychotherapy on peptic-ulcer cases was carried through by Chappell and Stevenson.[5] They divided 52 peptic-ulcer cases into two groups. In an experimental group of 32, daily instruction was given for seven weeks concerning the nature of worry and tension, and training in methods of self-suggestion which would lead to emotional control. The second group of 20 patients received medical treatment but no psychotherapy for a period of six weeks. At the end of three weeks 31 of the 32 experimental subjects were free from gastric symptoms, and 26 of them remained symptom-free for differing lengths of time after the end of the treatment. (Ten were symptom-free and on ordinary diets three years after the therapy.) All of the 20 patients in the second group

lost their symptoms in response to diet and medication, but within two weeks after the return to a normal diet there was a recurrence of symptoms in 18 of the 20. The results indicate the significance of psychological training, not only in the amelioration of symptoms, but also in keeping the patient in good health after the completion of the training.

It seems, in view of these experimental and clinical observations, that the peptic-ulcer patient tends to overreact physiologically and anatomically to the events of everyday life. The effect of the ulcer is to cause pain, discomfort, and a restriction of diet and activity. All these factors cooperate in making the overresponsive individual even more irritable, anxious, and depressed. Many of the ulcer patients show a remarkable and lasting benefit from mental hygiene measures, psychological reeducation, and any kind of psychotherapy promoting emotional stability and self-control. In general, the personality of the peptic-ulcer patient is such that his response to emotional events is excessive and prolonged, particularly those events which can be directly related to his actual physical disability.

Asthma[1]

Asthma is due to a spasm of the musculature of the bronchioles, which are the smaller air passages of the lungs, together with a swelling and dilatation of the lining of the air passages. These physical reactions are the result of allergen-antibody or antigen-antibody reactions of the tissues. That is, certain pollens are made up in part of chemical substances which have the property of penetrating the mucous layers of the respiratory tract and of diffusing into the tissues where they lead to the physical symptoms of asthma. When the penetration is into the tissues of the nasal passages the symptoms constitute hay-fever. Since the pollens are plentiful at certain times in the year and since only a small fraction of the general population develops asthma, hay-fever, or other allergic symptoms, it is considered probable that the sensitivity is in part dependent on psychological considerations or personality factors. The psychoanalytic study of several asthmatic patients indicated that these individuals were motivated by an unconscious fear of the loss of their mother or mother image. This fear was shown in a fundamental and unconscious pattern of anxiety. This anxiety is modified and diverted during the developmental history of the individual and shows itself in different ways in different individuals.

Since interference with breathing is always terrifying there is an undue amount of basic anxiety and fear in every asthmatic patient which must alway be considered. This anxiety due to fear of suffocation must not be

confused with the unconscious anxiety started by fear of loss of the mother. This distinction can be made by giving careful attention to the physical symptoms. The true asthmatic has difficulty in forcing the air out of his lungs, in absorbing extra oxygen when it is supplied to him and usually responds slowly to sleep producing drugs. The anxious neurotic who is having asthmatic symptoms will usually have difficulty both in inspiration and expiration and will respond quickly to oxygen and to drugs.

The depressed asthmatic greets each new physician with a statement similar to, "No one can help me. I have seen many doctors and I am still ill." The depression is primary in such individuals while the asthma itself is secondary.

Grieving and dependent asthmatic patients utilize their physical symptoms to secure reassurance, care, and attention. They respond to psychological sympathy as well or better than to physical or drug therapy.

The person who is basically fearful of closed places, of being closed in, may have asthmatic symptoms. His fear of being enclosed is experienced as a feeling of constriction of the chest together with a small amount of wheezing.

Whether the real difficulty in breathing causes a secondary anxiety or whether primary anxiety, depression, grief, dependence, or fearfulness are primary and the physical complaints are secondary is a problem which must be unraveled by the physician in each individual case. However, the evidence is clear, here as in many other forms of illness, that the psychological components whether primary or secondary cannot be ignored.

Summary

Disease is never an entity. Rather there is a sick person who is "diseased," uncomfortable, ailing, suffering. The sick person has complaints, behaviors, physical changes, and mental changes that are called symptoms. Physicians group the symptoms together for convenience, and call the groupings, diseases. Actually the symptoms are signals which show that the sick person is responding, consciously and unconsciously as best he can both to his inner ailments and to his environment. Sick people live in a reduced world; they are egocentric; their conscious life is dominated by their own ailments; they are intolerant of the emotional life of others. These general descriptions of a patient's attitude are applicable to most sick persons and to most kinds of illness. There is a psychopathology going with prominent cardiac symptoms, tuberculous symptoms, peptic-ulcer symptoms, or asthmatic symptoms. The mental symptoms differ among the various

syndromes in that each ailment tends to create a different set of problems and each ailment has a different meaning for the patient.

Whether there are personality characteristics or temperaments that favor this or that illness, is an open question. But that physical illness causes, or changes into, mental illness is not demonstrable save when the illness physically involves the brain itself; for example, the toxic delirium which may occur in the final stages of tuberculosis.

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Chapter 5 *Physical Handicap*

ONE WHO IS HANDICAPPED—DEAF, BLIND, STUTTERS—IS DISABLED, BUT usually is not suffering from a disease, in the ordinary sense of that word. Many sorts of personality reactions of physically or mentally ill patients are shown in much the same fashion by those who are handicapped. It was emphasized in the previous chapter that illness frequently gives rise to unusual responses or unusual personality development. These were considered to be due to (*a*) the immediate effect of the illness (panic in great pain); (*b*) the specific nature of the ailment (delirium in fever); (*c*) habits, attitudes, or motives growing out of the invalidism which results from the disease (laziness in the tuberculous), and (*d*) the social or environmental circumstances which surround the individual suffering from this or that particular ailment (fear of social isolation by the ex-tuberculous). Physical handicap affects the everyday life adjustments and personality development, as well as the personal and social responses. There can be no doubt of the frustration, the interference with ambition and activity, or the difficulties in social adjustment which result from handicap. From all of the many varieties of handicap we will consider the problems of the deaf, the blind, and the stutterer, as representative of the kinds of responses which one may expect to find among the handicapped in general.

Impaired hearing

The *deaf* are those who are born either totally deaf or sufficiently deaf to prevent the establishment of speech and natural language, or those who became deaf in childhood either before or soon after the establishment of speech, so that the ability to speak and understand speech and language has been practically lost. The *hard of hearing* are those who have established

speech and the ability to understand speech and language, and subsequently developed impairment of hearing. Table 1 gives the accepted relationships between hearing loss as measured by an audiometer (an instrument to measure hearing) and the functional capacity of the individual.

Table 1. Relation of measured hearing loss to functional capacity *

Decibel loss in speech range (better ear)	*Degree of handicap*	*Loss of hearing for speech at 5 feet*
Not more than 20	Slight	Usually not noticeable, but faint whispers often misunderstood
Over 20, not more than 40 [a]	Moderate	Soft or poor articulation often not understood
Over 40, not over 60	Moderately severe	Moderately loud articulation often not understood
Over 60, not over 80	Severe	Even loud articulation often not understood
Over 80	Very severe	Very loud or shouted words often not understood
No hearing	Total deafness	Very loud shout not heard

[a] Nerve deafness of less than 40 decibels causes little inconvenience at conversational distances. A decibel is the unit of measurement of intensity of sound.

The number of persons having hearing difficulties is not easy to determine.[6] In addition to the lack of agreement as to who should be included among the deaf and hard of hearing there is a good deal of reluctance on the part of many individuals to admit their deafness. It has been estimated that there are over 75,000 persons who are totally deaf in the United States and more than a million and a half who have hearing difficulties. Most investigations report that between 5 and 10 per cent of school children have hearing defects.

An analysis of the world of the deaf child [2]

The way in which the world appears and may be misunderstood by the deaf child may be illustrated by the following account from the life of a deaf 10-year-old boy.

Account	*Remarks*
Donald didn't know why he was going home in the middle of the week, but as soon as the house mother came for him he knew something was the matter. Don wasn't fooled.	The situation is unclear for Don. He tries to pick up as many clues as he can to give meaning to it.
"Nice child," the house mother said, "but he's not a very good lip reader, and his speech could be better. He has a good mind. He adores his father. Too bad."	

* From E. P. Fowler, Jr., *Medicine of the Ear.* New York, Nelson, 1939, 379.

Account	*Remarks*
Don caught the last words. "Father. Too bad!" Something had happened to his father. What was it? They would not tell him. Because he was deaf. He must find out for himself.	Don senses that something is the matter. He realizes that he will not be "let in." The only way out is to become a detective and fit the pieces of the puzzle together for himself.
In the office was a strange man. "Hello, Donny," the man said. "I – am – your – Uncle – Dave – Don – I – came – to – take – you – to – your – father." "Oh, I can't tell him."	
Don remembered. "Uncle Dave. I know. Where father?"	Persons who do not have contact with the deaf frequently feel that the deaf have difficulty in understanding and therefore think it unnecessary to explain things. They also may find that it is "too much trouble" to do so. Such exclusion may lead to behavior others regard as undue stubbornness, suspiciousness, or curiosity.
"I'll tell him," the principal said.	
"No, don't tell him. Wait till his mother tells him. Just tell him he's going home with me."	
"Why father did not come for me?" Don demanded. What was this they would not tell him? He wanted to know everything the others knew.	
But all he could say was, "Where father?"	The emotional tension resulting from the frustration may lead to blocking.
"Sorry to take him out of school," Uncle Dave said to the teacher. "But Bill, my brother, wants to see him before—before—" He stopped.	Don's repeated questioning is ignored. He puts together all the isolated cues which he can in an effort to make sense out of them. Gradually the situation takes on some meaning.
Don saw his Uncle had tears in his eyes. He saw "fight" and "life" on his lips. So his father had been in a fight and got hurt. He knew it all now.	
He sat very still in the car with Uncle Dave. He noticed that they were not taking the familiar road home.	"Suspiciousness," "stubbornness," "curiosity," must continue if Don is to discover whether his "meaning" corresponds with the true facts.
Was father in prison? That was where the men in the movies who were in fights went. "Where father fought? Who fought him? Father won?"	
"One? One what? Oh, it's all right, Donny. Father's all right. Mother will tell you. Wait for mother."	Uncle Dave makes no attempt to understand Don. Tries to reassure him with "It's all right," but such reassurance, without support of the situation as Don sees it, can only increase his suspiciousness.
When they got to Uncle Dave's house mother was not there, only Aunt Helen, who always talked baby talk to Don.	Persons who have little contact with the deaf frequently treat them as if they were babies who need protection and who are not socially or intellectually "all there."
"Tomorrow, Donny boy. Tomorrow Donny boy will see his mother," Aunt Helen said over and over.	Because many important details were not conveyed to Don, he thought he would see his mother. How can he trust his Aunt and Uncle now?
"Oh, Dave, this terrible thing happened and you can't even tell the poor child about it because he's deaf. He seems so unconcerned, too. So—er indifferent!"	Aunt and Uncle have no understanding of what Don feels. They exclude him completely from the situation and then

Account	*Remarks*
"I couldn't get much out of him on the way here," Uncle Dave told her. "Well, I'm going over to see how Bill's making out."	interpret his cautious attempts to enter as "indifference."
* * *	* * *
At last Uncle Dave came home. He was happy. "Bill's going to be O.K., and the other chap will get well, too. It's all right, Don. . . . can't you be happy? It's all right!"	Don is unable to accept the good news, partly because the new state of affairs has not been made clear to him, and partly because he has no basis for confidence in his uncle. Don wants to see his father. That alone will clarify the situation. Uncle Dave misinterprets his behavior and believes that Don just can't be happy.
"Where is jail?" Don demanded, "I want father!"	
"What does he say, Helen? Sounds like 'dale' to me. Well, come on, son. Better go to bed." Aunt Helen tucked Don in bed. If he could only see him alone! Father would tell him the truth. He always did. If he could only find father's jail. Why not? He got up softly and dressed, and stole down the stairs and to the front door. He jumped. There was Uncle Dave reading.	Little effort is made to understand Don. Again Don is ushered out of the situation. He is given adequate physical attention.
"Where are you going at this time of the night?" Uncle Dave was angry. "You're a bad boy! When we're all in trouble anyway!"	No attempt is made to understand Don's behavior. It is seen only as interfering with the adult's routine. Consequently, Don is a bad boy.
Don struggled in his uncle's arms, but he didn't cry, not even when Uncle Dave dumped him back in bed and locked the door.	
Then it was morning. Aunt Helen and Uncle Dave were different this morning. They watched him all the time, but did not smile at him.	His wishes and fears are not taken into account. He is regarded as an outcast.
They did take him to his father. Don knew it was the jail, for as they arrived a patrol wagon dashed up, and two policemen got out with a man whose head was all bloody.	
Don went in first. There was his father, wrapped in bandages. Don's father smiled. "Hello, fellow," he said weakly. It must have been a bad fight, Don thought. He held his father's hand till his mother drew him away. She took him out and then she hugged him and wept over him.	
"Mother, how long father jail?" he asked her. His mother did not understand him. She told him she must go back to father, and he must go back to school and be a fine, brave boy. "Father is better," she said. "Goodbye, my darling."	Still no effort is made to understand Don's anxiety and to clarify events for him. Probably, it is not even thought he is worried. Particularly under conditions of stress, it is difficult to put oneself in another's position.
Don went to the car with his uncle and aunt. Uncle Dave grew more cheerful	Reassurance without clarification of situation cannot reassure, particularly

Account	*Remarks*
as school drew nearer. "Everything is all right, Don. Don't be so glum. Aunt Helen and I are not cross any more. Father is all right. You are all right." But of course they were fooling him again. How could things be all right with father in jail?	when cause for doubt and suspicion remain.
They arrived at the school. The principal was there. "How did you find things?" she greeted Uncle Dave.	
"Oh, everything's all right. My brother is going to get well."	
"But say! I certainly take off my hat to you folks. These deaf children—so sly." Don saw him say "troublesome" and "run away," and he hung his head, and wouldn't even say goodbye to Uncle Dave.	Don's attempts to make sense out of the situation are completely misinterpreted. The misinterpretations are generalized to all deaf children. By this time, Don feels very helpless. Uncle Dave removes himself from all responsibility.
"Queer child. We couldn't get him to make up with us at all," Uncle Dave said.	
* * *	* * *
The principal said kindly, "Now Don, what happened? Tell me." And in a flood of words Don poured it all out—all about the jail and the policeman and the fight and father's hurts.	An attempt is made to understand the way Don feels.
The principal listened until Don finished.	
Then she said slowly and carefully, "No, Don. You made a mistake. Father was not in a fight. He was hurt. Father's car hit another car. It was an accident. You did not go to jail. You went to the hospital to see father. Father will be well soon."	For the first time, the situation is clarified. Don's need to understand all that happened is felt and care is taken that all his doubts and questions are answered. Now the reassurance can reassure, for it is in keeping with the possibilities of the situation as seen by Don.
Don stirred. "Once more!" he begged, and she said it all over again.	
"No jail?" Don cried, "No fight? Not father's fault?"	
"No, no, no! Father is all right. Father would not fight. Father drove the car."	
Suddenly Don burst into wild sobbing. The principal drew him to her and stroked his hair. He stopped crying at last, and smiled at her.	The emotional tension resulting from the repeated frustration is released.*

This illustrates how readily the behavior of the deaf may be misinterpreted. To a deaf person the meaning of a situation can be utterly different from its meaning to one with normal hearing without the difference being obvious. In such instances the hearing person judges the behavior of the deaf according to his own interpretation and often misjudges it. One's

* From R. G. Barker, B. A. Wright, and M. R. Gonick, *Adjustment to Physical Handicap and Illness.* New York, Soc. Sci. Res. Coun. Bull., No. 55, 1946, 164–169, and Anon., "The World of the Deaf Child," *Volta Rev.,* 1941, *43,* 103–107.

difficulty of appreciating how completely different the same objective situation may be for another person is the basis of much misunderstanding and intolerance.

Personality development of deaf and hard of hearing children

That there are differences in personality, growth, and development between the truly deaf, and the hard of hearing child has been borne out by a variety of studies. There are also differences between the personality of the individual who has been deaf or very hard of hearing from an early age and the adult who becomes deaf. For these reasons it is necessary to consider the problems of deaf children separately from the problems of deaf adults.

The scores made on the usual psychological tests of personality by children with impaired hearing show them to be more poorly adjusted, more unstable emotionally, and more neurotic than children with normal hearing.[8] These differences are not too striking or too meaningful since it was found also that the scores made by hard of hearing children who were attending regular schools in association with hearing children were not too different from those who had normal hearing. Deaf and hard of hearing children attending special schools were found on social competence tests to be less mature than children with normal hearing. Since the deaf child depends on visual and touch perception he lives in a world in which there are more "sudden" threats which cannot be adequately met; consequently, he is more fearful. Surprisingly, studies of wishes report that the desire to hear and speak better is expressed less frequently than are desires for other satisfactions. There is no consistent tendency for the degree of hearing loss to be related to personality adjustment or social competence scores. Probably individual differences between the persons who were studied were greater than were the differences in the hearing loss.

Although each period of life brings with it special problems of adjustment the test scores of maladjustment are not closely related to the age at loss of hearing. Subjective accounts and critical evaluations make it understandable why age at loss of hearing is not dynamically related to the degree of adjustment. Since each age period has its own problems, any overall score would conceal rather than reveal differences. For example, the effects of a severe hearing impairment before natural language is acquired, the tyranny of children in ridiculing those who are different, the new social and economic responsibilities of adolescence, the economic problem of deafness in adult life, all are essentially different psychological problems and are responded to in different ways.

One might expect that there would be some relationship between the intelligence of the individual and his adjustment to his handicap, but most of the studies show that in the range of normal intelligence there is but little correlation. Evidence from studies of the relation of intellectual control to emotional display tends to support this point. (An essential point in psychopathology is that emotion can and often does dominate intellect.)

Whether the deaf child should be taught to communicate manually (talk with his fingers and hands) or taught to speak orally, and whether the deaf should be segregated and taught in special schools or kept in the regular school system are points which have been debated for many years. A good deal can be said on either side of both arguments and no final decision seems possible. It probably is an individual matter and some children are better suited to manual communication and others to oral speech and lip reading. Certainly the deaf children are more comfortable when among those who are similarly handicapped but removal from the family brings another set of problems. Furthermore they are going to have to live in a hearing world so that that particular adjustment must be made some time. Again the end result so far as personality adjustment is concerned seems to be an individual matter.

It is interesting to note that children in families where there are other hard of hearing individuals, either of the same or different age, have a much easier task of adjustment than do children in families where there is no deafness. Probably the fact that there are other hard of hearing persons around means that the family has made some adjustment to deafness and this adjustment is carried over and works to the advantage of the second deafened person. The presence of other physical handicaps or impairments in the family also tends to ease the problem of the adjustment of the deaf child, probably in the same way as having a deaf member of the family.

Effects of deafening in adult life

When the hearing person thinks of deafness he usually considers only the fact that it will constitute a loss of ability to hear and understand conversations. Actually the experience of loss of hearing after one is an adult is a much more complicated affair. Not only is there a loss in the ability to handle adequately verbal communication but there is a more general psychological impairment which gives rise to many problems of adjustment and to acute feelings of depression and of suspicion. The deafened person as a usual thing does not himself understand the basis for his depression or suspicion.

To understand the psychological changes that accompany the loss of hearing one must first understand something of the meaning of normal hearing.[12] There are three fairly distinct functions served by hearing. (*a*) The background of sound which goes on twenty-four hours a day furnishes stimulation which somehow maintains a feeling tone of reality and a level of emotional pressure. It also affords one the opportunity to recognize where one is, what time it is, what one's immediate relationship to the world might be, as well as a private sense of being alive. (*b*) Hearing of sounds about us serves as a direct warning or signal of events present or about to occur. (*c*) At the social level hearing is used to comprehend language. All three of these functions of hearing are simultaneously intermixed in the life of the normal hearing adult. We can only appreciate the distinction between them when it has been called to our attention or when we are ourselves deafened.

Since sound surrounds us continuously day and night with only a very small fraction of it ever being consciously attended to, it furnishes an ever present background of reality. This reality is constantly changing because the background of sound is constantly changing. This background of sound is not apt to enter into conscious awareness unless the sound is sharp, sudden, prolonged, unusual, or the like. The sounds are not only those which come from the external world but those which come from our own body. We usually give no attention to the sounds from our own respiration, heart beat, gastrointestinal noises, and the like, but if there is a sharp change—an involuntary sigh or a yawn—we may attend to it and are sometimes surprised to find that something has changed internally without our having been aware of it previously. The feeling state which is in part dependent on this more primitive function of hearing is characterized by a readiness to react as well as a comfortable sense of being part of a living, active world. In this sense being able to hear serves to join the subjective inner world with the objective world of reality about one.

The effect of sudden deafening was described by one woman as follows:

> In my own case, my conception of its effect was literally that of a lost world. The palpable reality of life was suddenly void—its elemental phenomena suspended. Silence fell upon the world like a hush of death, and I alone seemed alive in the midst of it . . . The impairment of those things most intimately connected with the utilitarian and social relations of life, did not, to me, belong there . . . While an intense source of trouble they were never so destructive . . . of the individuality, as the loss of beauty and inspiration that went out with certain sounds . . . There must be something more elemental in the background of these things than was generally understood . . . Sound pure and simple has a specific relation to feelings widely different from that of sight. Its

primary effect was that of *creating moods*. It has been specialized into all kinds of forms that convey facts to the intelligence, but its earliest business was something else, and that business still exists. This being so, the simple fact is that sound has far more to do fundamentally with originating our emotions, or how we feel from day to day, than has what we see.*

One phase of the psychological study [12] incorporated in the rehabilitation program of soldiers who were deafened showed that part of their difficulty came out of a persistent question, "Why do I feel so depressed; so caught in a dead world?" This question was sometimes specifically formulated in those words, and it did seem to be part of the psychological state of all of those who had lost their hearing either suddenly or rapidly. Military patients who had become suddenly deaf were bewildered by their unexpected depression. They were conscious of an undefined feeling of loss. Many of them felt vaguely sad and insecure. One of them said that it was almost impossible to recognize the passage of time since he couldn't hear a clock tick. Some fell asleep whenever they turned off the hearing aids that brought them some sound from the world around them. In part this depression depends on the fact that the deafened person has not learned or consciously realized the loss that he has suffered in the primitive level of hearing, that is, in the background of the sound to which he had been accustomed all of his life. Being unaware of this loss he tends to attribute his depression to some psychological weakness, feeling that by some act of will he can snap out of it. Bewilderment and self-accusation act to heighten the depression which already he cannot understand. It is, of course, necessary that the deaf person be made to realize the basis of his emotional state. Fortunately the explanation does provide a real therapeutic service. Realizing the basis permits the patient to reorganize his thinking and the depression gradually lifts.

A second perceptual value of hearing function is its signal or warning service. From it we learn of events taking place around us; we know something of the direction from which the sound comes. There is no way of interrupting this normal auditory function whereas the visual field can be interrupted by closing the eyes or turning out the lights. Hence, we unconsciously depend on the continuity of sound. After one is deafened this whole set of cues is no longer available so that the person must now look or feel his way toward a situation. When crossing a street, for example, he really must stop and look where formerly he could trust the auditory cues to a large extent. Deprivation from these cues gives rise to an additional feeling of in-

* From M. Baldwin, "The Road of Silence," *Atlantic Monthly*, 1917, *120*, 731–734.

security and anxiety. The deaf man must learn to attend to things in a different way in order to maintain his security.

The loss of the background of sound function and the signal function interferes with such aesthetic experiences as appreciation of music, the singing of birds, or the shouting of children. This deprivation adds to the feeling of emptiness or unreality.

The loss of hearing as a means of communication affects the personality in two ways. (*a*) Language makes possible communication of experiences through a flexible medium which may have a variety of degrees of complexity. Hence deafness greatly restricts communications received and the possibilities of expressing oneself. (*b*) In the world of the growing child, language serves to formalize and bind social prohibitions and experiences into conscience; in fact we commonly describe it as "the voice of conscience." For the child who is born deaf, this process of verbal establishment of standards of behavior is interfered with.

About one out of every eight deafened soldiers was found to be "psychologically" deafened. That is, there was no apparent permanent damage to the auditory mechanism itself. These psychologically deafened soldiers were diagnosed as hysteric (see Chapter 6) or schizophrenic (see Chapter 10). In neither diagnosis was there any reason to believe that there was any conscious malingering or faking.

A more complete study of certain of the depressed patients showed that there were certain peculiarities commonly found in their case histories. These patients tended to emphasize the subjective effects of their hearing loss and to show definite hypochondriacal complaints. They spoke not of the objective inconvenience of their impairment as did the hysterical deafened but of the change in their own feeling state. They were perplexed and frightened, saying that the world about them was incomprehensible and overwhelming. It is possible that the silent world provoked or made manifest a neurotic or psychotic predisposition.

Suspiciousness[1]

It is a common experience of all normal individuals at one time or another to imagine that someone else is talking about them or to misinterpret half-heard remarks as being directed at one in a critical and unfriendly fashion. Suppose a woman has a new hat which gives her some doubt as to whether or not it is becoming. When wearing it for the first time she may overhear chance remarks made by passers-by. In all probability none of these remarks would have been directed toward her or have any-

thing to do with her hat. However, because she was somewhat uncertain as to the suitability of the hat she will be inclined to interpret either positively or negatively these remarks as directed towards her. In deafness this tendency to be suspicious is markedly accentuated and may lead an oversensitive person to become unduly hostile to those around him. In fact, deafness seems to be a powerful stimulus to anyone who has latent tendencies to be suspicious. It is frequently noted that deaf people often think that conversations which they cannot hear do concern them. They often go so far as to think that derogatory remarks are being directed towards them in tones too low for them to hear. If a person is secure in his own emotional life he will not develop these suspicious tendencies when deafened or he will be able to readjust himself quickly and see for himself the falsity of his suspicions. One must remember though that the psychological life of the deafened person has changed. The affective value of existence, the usual warning value of sound, and the reassurance of ordinary conversation are disrupted. Hence if he has not previously been fairly secure and free from anxiety then the tendency to suspicion may overwhelm him. Fortunately most deaf people can recognize this tendency and understand the basis for it, when it is pointed out. Like many of the other disabilities of handicap it must be compensated for, by increased tolerance both on the part of the individual and those about him.

Most people have the idea that blindness is a much worse affliction than deafness and that blindness is more apt to produce mental symptoms than is deafness. For example, it has been said that blindness is an affliction while deafness is only a nuisance. This idea and this saying are untrue. Deafness gives rise not only to irritation, frustration, isolation, and peculiar subjective feelings, but also to ridicule and lack of consideration on the part of those who can hear. One never sees a blind person made fun of in a cartoon or comic strip but the deaf man is frequently used as the butt of a joke. It is customary to make jokes at the expense of the deaf while a joke on the blind is considered the height of poor manners. It should be clear that deafness is a real affliction and one that gives rise to more psychopathology than does blindness.

The blind

To the observer blindness is more impressive than deafness. We can easily imagine what it is like to be in total darkness because we experience it quite frequently, and we know how darkness can engender fear and rob us of our feeling of security. Absolute quiet is rarely or never experienced in

the life of the normal human being. Having no experience with it we have no reason to know whether it is fear provoking or not. Also, blind eyes are more directly impressive than deaf ears. We can see the outward evidence of blindness and the evident difficulty which the blind person has in getting about. We may not understand the fact that the deaf person is handicapped until we attempt to engage him in conversation and are surprised, amused, or annoyed by the fact that he has difficulty in hearing what we have said. Since the deaf and hard of hearing are still partially able to adjust to their environment, we expect more of them than we do of the blind. All of these factors contribute to the greater social difficulties imposed on the deaf than on the blind. All of this leads to an easier understanding of the fact that the blind, generally speaking, suffer fewer personality difficulties than do the deaf; the blind are less apt to be "abnormal" than are the deaf.

The studies which have been made of the psychological development of blind children indicate that they are no different in any major respect of personality development from any other group of handicapped children. There are no specific peculiarities other than those directly concerned with the lack of vision which mark the personality development of the blind child. The fact that society makes a more adequate provision for the blind and exhibits sympathy, pity, and tolerance towards blind children to a much greater degree than it does to the deaf may contribute to the fact that blind children usually show fewer personality deviations than deaf children.

The normal emotional reaction to blinding [5]

Blindness is to all persons a most fearful disability. The sudden loss of vision by a young person requires a great psychological and emotional reorientation, towards every aspect of life. It might therefore be anticipated that severe emotional disturbances would occur among newly blinded soldiers but this is not always or necessarily true. Some newly blinded soldiers, particularly those who have been free from pre-existing neurotic or psychopathic traits, accept their handicap with an adequate emotional adjustment and go about the process of reorganizing their life in a courageous and constructive manner. Their attitude could be characterized as, "Well, it has happened, one has to make the best of it and go on in life from here." When the matter-of-fact attitude is taken very soon after the injury is incurred, there are many fewer problems which arise in rehabilitation. Illustrative of this well adjusted attitude are remarks like these:

"Well, I think it is better to be this way than the way some of the fellows are. Even though everything is strange and it is hard to get used to this kind of life,

I'd rather be like this than over in France buried. You know I don't really need to see to imagine what everything is like."

"Something happened and I can make the best of it."

"I don't feel so badly about it. I think I am prettly lucky to have what I have. I know lots of fellows who didn't get by nearly as good as I did." *

The blind soldier who finds difficulty in adjustment expresses his attitude as follows:

"I would just as soon be dead as going around blind."

"I feel that I'd like to die right now. I have prayed that I'd die but I don't believe there is any God in heaven. I felt quite a few times that I would like to take my own life." *

In one study of 150 blinded soldiers, 89 seemed to be well adjusted while 27 were badly adjusted. The remaining 34 fluctuated in their emotional responses.

General effects of blindness

Blindness compels the individual to rely on his remaining sensory organs. This means that he has to reorient all of his perception with respect to hearing, touch, smell, taste, and kinaesthetic experience. There is probably no actual lowering of perceptual thresholds in the remaining senses but rather a shifting and refocusing of attention to portions of experience which were not formerly attended to. Observations of blind men in their daily routine show that some of them make a predominant use of hearing and others of touch. The defiant man ventures out on his own after a few days in the hospital, whereas the anxious individual clings to the furniture or insists on being escorted for a long time. In their imagination blind men do not live in a world of darkness. On walks they continually picture in their "mind's eye" what they are passing, such as birds or trees. Some say, "I sometimes forget that I am blind." In fact, in some the inability to see is made up to a great extent by their remarkable ability to visualize. They say that familiar faces can usually be easily visualized from memory. (People never grow older in the fantasy of the blind.) A stranger is visualized by his voice. His face is often a blur, or is assumed to resemble the face of some person that is remembered. If they like a person's voice they may endow him with handsome features; if not, the individual may appear to have the visage of a movie criminal.

Blind men of necessity must rely more on their memory than sighted

* From B. L. Diamond and A. Ross, "Emotional Adjustment of Newly Blinded Soldiers," *Amer. Jour. Psychiat.*, 1945, *102*, 368.

persons. Hence many blind men report that their memory has improved. In learning to read Braille a majority visualize in their minds the patterns of the dots; but with time this visual pattern is forgotten. Most blind when reading Braille bend their heads down as if they could see. Some blind even complain that after prolonged reading of Braille they have "eye-ache."

Some characteristics of the blind [14]

Immediately after blinding the person is almost as dependent as a young baby. This dependence must be overcome for adequate adjustment to a dark world. The blind take pride in what they can do despite their disability. They have to learn to walk again without assistance. They resent assistance if not absolutely required and object to the pity of well-meaning, although ill-informed sighted persons. After they have reoriented themselves they find that they cannot take part in various activities that the sighted do, such as sports, and they wonder if they ever will be on equal terms with the sighted. Even those blind who establish themselves in well-paid positions often cannot rid themselves of the feeling that sighted people look down upon them so that they are apt to react badly in situations which show up their disability. Feelings of inferiority in combination with the imperfect grasp and assessment of prevailing circumstances may give rise to suspicion in the blind just as they do in the deaf. A blind man has plenty of time to think about what has been said to him and if he is of a suspicious nature he may read into remarks hidden meanings which were not there.

The proverbial meekness of the blind is a myth. Their disability makes for impatience. Sighted people do not like to be kept waiting; but for the blind, because they are unable to see what delays their attendants, it is all the more annoying. They say, "Everybody seems so slow in grasping and doing things." They find that their impatience and suspicions tend to make those about them less helpful, but if they behave in a meek fashion almost everyone aids in accomplishing their desires. So they often adopt a meek attitude no matter what their real feeling may be.

The jokes of blind men related to their disability are either directed against themselves or made at the expense of other people. Their little blunders, bumping into something or tipping something over, are a never ceasing source of amusement among themselves. Two blind men may be walking on the street and one may tease the other by saying, "That is a pretty girl over there isn't it?"

Dreams mean much more to blind men than to sighted persons. While dreaming they can see again. Familiar faces are seen quite clearly; those of

strangers as a blank or a blur, or they may "stick a face on." They experience their recovery of sight with exaltation and are downhearted when, as they awake, reality comes back to them. In some dreams they know they are blind and yet they can see. In their dreams they may try to convince others that a miracle has happened or feel that they are a fraud because they are being led about. Their dreams often reflect their mental state as in the following examples: "I dreamt of being in a dark forest and did not know which way to turn." "I walked along a rope and safely reached the other end." "A little man was sitting on my shoulder and guided me around the streets. He took me to a tribe [of little men] and I brought some of them back to the blind school and I gave one to each of the blind men."

As a usual thing blind people like to talk and may be excellent conversationalists, even though long-winded. It happens not infrequently that after a few preliminary remarks they get to talking and are still going strong three or four hours later. Darkness in general invites confidential talk which is facilitated by an inability to see the other person's facial expression. Furthermore the blind have the need of relieving their pent up emotional tension so that their conversation may become emotionally dramatic.

The sleeplessness of the blind is usually attributed to their inability to differentiate between light and darkness and to their lack of exercise. This explanation is only partly true as is shown by their frequent disturbing dreams. Darkness is not of necessity a soothing experience. It often serves to revive childhood fears which were kept in check during daylight. A fair number of blind are found who are on occasion subject to morbid fears of darkness. They visualize the darkness around them very vividly and, fancying the presence of men ready to pounce upon them, they make their way as fast as they can for what they know to be the shelter of a well-lit room.

In general then one can say that the personalities of the blind are understandable in that depression, resentment, defiance, or meekness are outgrowths of their previous personality plus the particular limits set up by being blind. The changes which take place in the personality of the blind are not too difficult to understand and do not cause either the individual himself or his friends and relatives as much trouble as the personality adjustments which are shown by the deaf or hard of hearing.

Stuttering

No matter what its cause may be, stuttering is a handicap which is based on a disorder in the rhythm of verbal expression. Stuttering is associated with personality deviations, some of which seem to be unusual or abnormal.

Some established facts about stuttering [3]

There are considerably more male than female stutterers at all ages, and the differences in incidences are greater at the older age levels. Most stutterers can speak in unison with a group without stuttering; they can sing without hesitating; they can talk to themselves when alone; they can talk in a chant or sing-song manner. There is a marked tendency for stuttering to begin at one of three periods of life; (*a*) at the onset of speech, (*b*) between the age of five and seven, or (*c*) at adolescence. From 60 to 85 per cent of stuttering begins before age seven. Stutterers tend to have a characteristic body-build (usually leptosome; rarely pyknic). They have more biochemical and vasomotor disturbances than the average person and are inferior in control of voluntary movements. As a group, stutterers are more neurotic, more introverted, less dominant, less confident of themselves, have more fears, worries, and tensions, and are more hesitant in making decisions than are comparable normal speaking persons. There is a marked association between left-handedness and stuttering. Stuttering is more frequent among the mentally retarded than among those of normal intellectual ability but stutterers in ordinary public school classes show the same distribution of IQ's as nonstutterers.

Symptoms of stuttering [13]

In normal speech there is a mobilization and organization in proper temporal sequence of a series of complex motor responses. Any disturbance in the temporal order will disrupt the whole performance. Speech is, in this sense, an expression of a dynamic and kinetic rhythm. The major characteristic of stuttering is a disorganization in the temporal forward-moving process of speech and a disintegration among the various speech apparatus movements. Some elements function out of temporal phase with other elements so that the organization is defective.

In stuttering there is frequently found to be an abdominal inspiration and thoracic expiration at one time. Because of this, breathing movements neutralize each other so that no air moves through the larynx. In normal speech there exists an independence between the movements of the breathing mechanism and those of the larynx; in stuttering there is a marked tendency for the larynx to move synchronously with the abdomen or the thorax or both. Inspiration may continue for as long as ten seconds while a stutterer is attempting to speak. During this long inspiration the larynx may be in a tonic spasm or show abrupt vertical movements. Spasms of the

speech mechanism muscles may be short or exceedingly long. Tremors in certain of the speech muscles during stuttering or in muscles not related to speech may occur and interfere with the rhythmical organization. The average stutterer holds his tones during speaking three times as long as does the normal speaker. In normal speech there is usually a gradual building up in the amplitude of the tone, while in the stutterer's speech there is an abrupt initiation of tone. One of the most obvious signs of stuttering is a repetition of sounds. There is no real difference between the repeating and the blocking, the repetition being a marked prolongation of the blocking phase. Many stutterers block when attempting to speak, so that they are unable to produce the sound for an appreciable length of time. There is a good deal of variation among stutterers and in the same individual from time to time. These symptoms are all primary, in that they affect the speech itself in a more or less mechanical fashion.

Influence of stuttering on personality

Johnson,[10] himself a stutterer, has studied the personality of stutterers. In one investigation of 80 stutterers (61 men, 19 women) who were of better than average intelligence, he inquired particularly into their personality make-up and the effect which stuttering had upon their personality. He obtained from each a family history and an autobiography. He gave all subjects several specialized questionnaires, together with personal interviews, in order to bring out facts concerning their attitude toward life and the way in which their handicap had affected it.

He found that most stutterers think of their speaking disability in one or more of the following ways: (*a*) a handicap, either general or specific; (*b*) a mark of inferiority; (*c*) a way to talk, inconvenient at times but not an important reason for worry or shame; or (*d*) an advantage with respect to certain kinds of adaptation. The immediate reaction of the stutterer to his stuttering depends on the setting in which it occurs. The two major influences on his personal attitude to his disability are the training and general treatment which he received from his parents and at school. If either the parents or the schoolteachers force the stutterer to do a great deal of oral recitation, public speaking, or other activity in which his speech difficulty is a major interference, he is likely to become more fearful, tense, nervous, and maladjusted. If he is allowed to go on at his own pace, doing as much oral recitation as he thinks he can, with some degree of encouragement, he is not apt to acquire a sense of inferiority and maladjustment.

Many stutterers compensate for their disability by taking up athletics,

some form of music, or a hobby in which they can excel and in which their speech difficulty is no handicap. Most of them have no trouble when they sing or play a musical instrument. However, some are unable to sing, particularly in a solo part, or under emotional circumstances. One of Johnson's cases reported "finger hesitation" when playing the piano. He said:

"This is a hesitation in the finger action caused by the fact that the right kind of nerve energy doesn't get to the muscles of the fingers. In playing the piano I will sometimes have this difficulty, especially if I am working on a new piece that I have to analyze. It bothers me much more if I am tired and fidgety, or feeling blue . . . These periods of hesitation don't come all the time, but when they do come they come all at once . . . I will place my fingers over the proper keys; I will know exactly what I want to play, but yet I am unable to press down the keys. The nervous tension that comes over me at this time is impossible to describe." *

Stutterers reported fantasies which were classed as (*a*) success-normal speech, (*b*) revenge, (c) anxiety, and (*d*) despair. The success-normal speech fantasy was the most common. In their reported daydreams the stutterers indicated that they were normally sociable, considerate individuals. Their apparent introversion frequently appeared to be a frustrated extroversion. The most common wish expressed by stutterers was that they might be cured of their stuttering.

From the standpoint of mental hygiene and personality development, Johnson emphasized the point that the stutterer should be regarded neither as a psychiatric patient nor as a laboratory subject, but as a human being who has many problems, one of which is the manner in which he speaks. How important this latter problem will be depends upon the part which stuttering plays in the stutterer's life, upon the definition which the individual gives to his disability, and upon the general life situation in which he finds himself.

In his autobiography, entitled *Because I Stutter,* Johnson[9] provided additional data illustrating the effect of stuttering on personality development and life adjustments. Johnson began stuttering at the age of five for no apparent reason. The handicap persisted during the remainder of his life. There was nothing in his family history, birth, childhood illness, or social circumstances which was extraordinary or could in any way be thought to be responsible for the condition. His father explained his stuttering by telling him that he was "thinking ahead of his speech" and that he would "grow

* From W. Johnson, "Influence of Stuttering on Personality," *Univer. Iowa Stud. Child Welfare,* 1932, *5,* 41–42.

out of it." His mother said that his stuttering was "a kind of nervousness." Others told him that he stuttered because he was afraid that he would stutter which, he says, was a reversal of the true situation. An older brother was fond of the notion that he stuttered because he really wanted to. This, Johnson said, was not true. (Everyday observation of stutterers brings one to the conclusion that stuttering occurs whether the stutterer wants to have difficulty, does not want to, or does not care one way or the other.) Johnson consciously directed his interests toward scholarship, athletics, writing, and good fellowship. These activities reassured him, so that even though his speech was defective, he could express himself more accurately and adequately than most of his fellows.

When nineteen, he went to a "stuttering school." Here he was taught to speak slowly, to keep his voice flowing, to hit consonants lightly, and to glide over words. He was taught to keep calm and to adopt a public-be-damned attitude. He was encouraged to carry on physical exercise and breathing practice. While at the school he did not stutter very much, especially when he spoke in a drawling monotone. However, after three months of diligent work, he returned home stuttering just as much as ever. The failure of the method and his own previous inability to overcome his difficulty under ordinary circumstances came as a tremendous blow to his hopes and aspirations. Later, he went to a university where he took part in the research program on speech pathology. He shifted from right-handedness to left-handedness. This shift helped, but did not cure the stuttering.

He also underwent psychoanalysis in order to discover factors which might have been responsible for the stuttering. This analysis showed no evidence of any severe psychopathic tendency which might explain the defect. It did show that as a stuttering individual he had reacted to a glib society rather vehemently, and that because of his stuttering he had developed certain fears and ideas of a paranoid nature. The analysis seemed to clear up these particular symptoms, but the stuttering continued.

Theories of the nature of stuttering [7]

There are many theories concerning the essential nature of stuttering, some of which are flatly contradictory. There is the theory of absent or weak visualization; the theory of auditory amnesia and recall; the conditioned response theory; the theory of fear and self-consciousness; the theory of neural conflict between the brain cortex and lower nervous centers; the psychoanalytic theory of oral eroticism, oral fixation, and fear of revealing unconscious material; the theory of cerebral dominance and cortical gradients,

as well as many others. Each of these theories has had its vigorous proponents and those who have held that it was completely wrong. "Cures" and "failures" have been recorded in terms of every theory. Particular theories have given rise to different types of reeducation. Most of these have been built around rules of breathing, enunciation, and continuity of sound production. In one sense, all such efforts are equally futile. So long as confidence lasts and the new way of speaking is still a novelty, one method is about as effective as any other. The moment, however, confidence breaks down and the novelty of the new way of speaking wears off, one is as useless as the other.

It may be concluded that not all stuttering is of the same origin or nature, even though it exhibits itself in the same types of laryngeal spasms. Probably many stutterers have reversed or conflicting cerebral dominance; in some, the symptoms are a form of hysterical conversion; in others, a kind of conditioned response mechanism; and in still others, the stuttering is but one manifestation of a neurotic personality. Therefore, each case must be investigated individually and treated in terms of the most probable basic difficulty.

Summary

Handicap gives rise to personality deviation in either of two ways. The reactions may be enforced on the disabled person by the handicap while the nonhandicapped person fails to recognize or understand the effect of the disability. The timidness of the deaf or blind, or the seeming indecisiveness of the stutterer are examples. The handicap may lead to personality deviation because of the interaction between the disabled person and those who are not disabled. The depression, suspiciousness, and introversion of the handicapped are explained in these terms.

Deafness is associated with several outstanding personality changes. The depression is related to the "dead world" of silence. The suspicion grows out of a lack of appreciation by the hard of hearing of the effect of not comprehending what people say in his presence. This lack of comprehension reinforces a paranoid tendency which many persons have, but keep under control. Dependency, anxiety, and fearfulness are not uncommon or difficult to understand. Personality changes in the blind are similar to those of the deaf, though not usually so marked. The meekness of the blind is a learned, adaptive reaction.

Stuttering is a handicap associated with personality maladjustments of a neurotic, dependent, indecisive, and noncommunicative sort. Less is known

about the basis and effective therapy of stuttering than of the personality deviations associated with it.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 6 *Hysteria and Dissociated Personality*

SO LONG AS A PERSON HAS COMPLAINTS OR HAS SHOWN UNUSUAL BEHAVIOR and there is a more or less recognizable physical basis which can somehow be associated with it, everyone, including the person himself, has a feeling that the complaints and behavior are understandable. The two preceding chapters have explored the psychological changes going with the physical ailments or disabilities. There are many people who have complaints of bodily ailments or show unusual behaviors which are beyond their voluntary control, who after careful and complete physical examination are found to have no demonstrable organic pathology which would account for the difficulty. Generally speaking such persons are said to be suffering from a neurosis or a psychosis. They are sick people without a physical basis for their illness. There are many ways in which the symptoms group themselves, so we speak of the neurosis or the psychosis and then use an adjective to describe the particular syndrome (group of symptoms).

The word "neurosis" originally meant a disorder of nerves. Further study showed that this was not wholly true, so the term "psychoneurosis" was coined—illness of mind and nerves. This was no improvement. A satisfactory definition of neurosis is as follows: Neurosis is an undesirable emotional condition which is generalized and persistent; it occurs in a minority of the population and has no regular basis in known organic pathology. Specifically, the neuroses are a group of abnormalities in which occur such psychological events as anxiety, irrational fears, compulsions, obsessions, and physical complaints without known organic basis. The pattern of symptoms varies among individual cases. The different varieties of neuroses (hysteria, anxiety states, neurasthenia, compulsive-obsessive states, and reactive neuroses) are designated on the basis of the particular symptoms that predominate. In practically every case, many types of symptoms are present. The outstand-

ing symptoms,[3] in order of frequency of occurrence, are anxiety, tenseness, depression, sexual preoccupation, hypochondriasis, obsessions and compulsions, fear of insanity, and weakness.

The neurotic individual has a tendency to worry over little things and to be unable to make up his mind. He feels inadequate and socially uncomfortable; he is tense and unable to sleep at night; he has illogical fears and is pursued by troublesome thoughts. Everyone can truthfully say of at least one of these characteristics, "Why, that's true of me," and ask, "Am I neurotic?" Such isolated or transient experiences are too common to justify their being called pathological. Under strong emotional upset or stress, anyone may be temporarily disorganized psychologically, but *in the neurotic these reactions are persistent and chronic* and constitute a style of behavior in a wide range of different situations. They interfere so extensively with the person's efficiency that he must be viewed as a patient with a "mental disorder."

Are we justified in speaking of neurotic tendencies in a basically normal person? On the basis of the frequency of episodic neurotic reactions, the answer is Yes. Many people who at times behave neurotically are not incapacitated socially or vocationally, but their lives are filled with periods of annoyance, real suffering, unhappiness, and wasted energy. Is it justifiable to place these "normal" neurotics at some point on a scale ranging from normality to severe neurosis? The findings of the psychoanalysts support such placement. Also, a public health survey [7] made in one part of Baltimore showed that the persons in the general population who were said to be "nervous" had a sex, age, and race distribution similar to that of those who had been diagnosed neurotic in that area.

What is the relation between neurosis and psychosis? Some have held that there is no difference in kind of psychological deviation, but only in degree; that the neurosis is a mild form of the condition called "psychosis." Certainly, the symptoms of neurosis are less deviant from the normal than are those of psychosis, and in this sense, it is but a matter of degree. But does this mean that neurosis and psychosis are based on the same psychological processes? The best answer is No. It will be shown in Chapter 10 that some patients whose behavior seems to be neurotic later develop a psychosis but the symptoms are, when carefully studied, distinct from those of the true neurosis. The weight of the evidence indicates that neurosis and psychosis are really different kinds of psychopathology. In everyday terms it is fair to say that the psychotic is a *danger* to himself and others, while the neurotic is a *nuisance* to himself and others. The standard formulation of the differences between neuroses and psychoses is that the *neurotic is in better*

contact with reality and shows more insight into his condition. The psychoses usually involve a change in the whole personality of the subject, whereas in the neuroses only part of the personality is affected.

History of the concept of neurosis

The concept of neurosis is a relatively new one in the history of medical psychology. Charcot was the first to study neurotic cases as a group. In the 1880's he showed that hysterical symptoms could be produced and removed by suggestion. The therapeutic results obtained by him were so astonishing that his treatments had a great vogue. Charcot believed that the cause of hysteria was an inherited degeneracy of the nervous system. The patient was assumed to be so susceptible because of this degeneracy that symptoms could be set up by suggestion. He recognized psychological influence in the determination of symptoms, but he did not believe that they were the primary causes of the illness. He made use of suggestion and hypnosis in treating the symptoms of these cases.

Janet,[6] at the end of the nineteenth century, was the first to formulate a psychological explanation of neurosis by showing how mental factors operate in producing symptoms. He considered hysteria to be the result of faulty mental reactions. The major symptoms were attributed to a retraction of the field of consciousness, and to the tendency for the dissociation of systems of ideas and functions. He believed that in the hysteric certain elements of consciousness (an idea, an emotion, or a system of movements) separated themselves from consciousness and took on an independent existence of their own, apart from the rest of the personality. Consciousness was no longer able to control them when they had reached this exaggerated degree of independence. The different types of symptoms which developed depended upon the particular idea or set of ideas that split off from normal consciousness and achieved this independent existence. Janet held that the specific form of the symptoms was in some cases due to suggestion; in some other instances the functions involved were those which were most difficult for the person; in still other instances, the functions involved had been in full activity at the moment of some strong emotional trauma (a conditioned emotional response). Janet introduced systematization into the study of neurotic disorders, dividing the patients into those who were suffering from hysteria and those suffering from psychasthenia. Under the latter, he included morbid fears, undue fatigability, obsessions, and compulsions. He held that neurosis was an evidence of weakness of the central nervous system because the level or amount of psychic tension was lowered or disturbed.

This lowering or disturbance brought with it feelings of fatigue (without physical basis), feelings of weakness, self-dissatisfaction, and a lack of will power. Although his description is essentially a psychological one, he believed that nervous tension could be lowered by physical factors, such as disease, fatigue, emotion, or the changes at puberty.

Another outstanding figure in the historical development of the hysteria concept was Freud.[13] His early work with Breuer on cases of hysteria marked the beginning of psychoanalytic psychology. Although some of his original concepts were derived from Charcot, he went on to develop a broad and systematic formulation of the problem of neurosis. His explanation of the neuroses, although popularly quoted as a psychogenic interpretation, actually emphasized that they were serious, constitutionally determined disorders, evidenced over long periods of life.

Breuer and Freud [1] revolutionized the concept of hysteria by the study of the dynamics of repression in patients of this type. Freud taught that every hysterical symptom is based on, or is symbolic of, some repressed sexual wish. Such wishes are repressed from consciousness because they run counter to the social and ethical standards imposed on the individual. Because the sexual wish is not adequately repressed, its emotional tone is displaced and becomes attached to other ideas or reactions, which of themselves are not socially taboo. When this emotionality is shifted over to, or "converted" into, a physical symptom (such as blindness or paralysis), the condition is called "conversion hysteria." Freud recognized the importance of dissociation in hysteria, but was mainly interested in the causes of this dissociation and the dynamics of the specific symptoms that occurred. He believed that the tendency of the hysterical patient to cling to and exploit his symptoms results from the fact that they satisfy some basic wish. Freud's formulations regarding hysteria have had a great influence on present-day views of this disorder.

The theories of Horney [5] represent one of several new developments in psychoanalytic psychology. She holds that neurotic trends develop, early in life, from combined temperamental and environmental influences. These trends are attempts to handle feelings of fear, helplessness, loneliness, and insecurity. In this sense, they are psychological protective devices. She stresses the importance of specific cultural conditions in determining the nature and form of neurotic reactions. The person who becomes neurotic has experienced the difficulties peculiar to his particular culture in an accentuated form, and mainly because of certain unfortunate childhood experiences, his solution of these difficulties is inadequate. In this newer interpretation, as well as in many of the older psychoanalytic interpretations

of the neuroses, the importance of conflict is stressed. This conflict has been formulated in various ways; as a struggle between different instinctive drives, between personal drives and the pattern of culture, or between ideals and practical necessities. The concept of conflict as the basis of neurotic behavior has had wide acceptance by psychiatrists and psychologists. One should bear in mind that it is still open to question whether the conflict precipitates the neurosis (in the neurotically inclined), produces the neurosis, or is itself the product of neurosis.

Hysteria

Hysteria is a form of neurosis of special interest to the psychologist because of the highly dramatic nature of the symptoms, and because the scientific study of abnormal psychology started with the investigation of these cases. These investigations have furnished many of the basic concepts which are used in the field of psychopathology. Such insight as we have concerning the mental mechanisms and the operation of unconscious motives and drives came first from the study of the hysterical patient. His symptoms are more striking, more easily understood, and less involved than those of the other forms of neurosis or psychosis. In addition, it has been found that many of the mechanisms manifested by the hysterical patient give us added insight into the mental life of the normal person. The following case history is illustrative:

CASE 3: Miss M was an attractive, twenty-five-year-old girl who came to the hospital because of fainting spells. These spells had continued more than a year, becoming more frequent within the last month. She worked as a waitress and had experienced these fainting spells several times when she was carrying a tray full of dishes. She slumped to the floor and remained unconscious for five to ten minutes. On recovery she was able to go about her work but complained of feelings of numbness in her legs and arms. No attacks occurred during the ten months of her hospitalization, but she developed an insensitive skin area across her shoulders. This anesthesia lasted only a few days and she then started to complain of feelings of numbness in her legs, and a feeling of weakness in her knees. After these feelings disappeared, her next complaint was of a choking sensation in the throat, as though something were lodged there. Later, a persistent, hacking cough appeared. Physical medical examination failed to provide any organic basis for her symptoms.

Miss M was the youngest of five children and had always been the baby of the family. She had been the center of attention for the older members of the family and was always able to get her own way by resorting to tears. She was well liked by others of her own age, but she had no close friends of either sex. She

spent a great deal of time primping, requiring an hour to dress before going out on the street. She was not introspective nor did she worry particularly about her fainting spells. She was rather childish about getting her own way and would sulk if interfered with. Her parents were very much concerned over her welfare. Because she was attractive and popular, they had hoped she would make a "good" marriage but their efforts to get her interested in any particular boy had been unavailing. When pressed along this line, she would become very emotional, cry bitterly, and tell them they were trying to get rid of her.

During hospitalization, she frequently recounted her physical complaints to the doctors but showed no profound concern over them. In general, her attitude was that of a fretful child who feels she is not getting enough attention. Through suggestion and persuasion it was possible to remove the physical symptoms but it was not possible to develop adequate self-understanding. She became bored with the hospital routines and insisted that her family take her home. She was still suffering from hysteria and all efforts at psychotherapy had not altered her basic troubles.

The symptoms of hysteria

No single case history can give any notion of the wide range of symptoms that can occur in hysterical patients, but the history just given illustrates certain characteristic features. The individual suffering from hysteria is usually rather childish in personality and desirous of getting attention. He is talkative, sociable, and inclined to dramatize himself. The numerous physical complaints appear, disappear, and shift to other forms without any demonstrable organic basis. The physical complaints are called *conversion symptoms* on the assumption that psychological disturbances are "converted" into physical disturbances, the physical symptom replacing the emotionally charged ideas.

The symptoms of hysteria are so varied in nature that practically any organ or function of the body may be involved. These disturbances have been, and still are, the most common source of surgical mistakes—unnecessary appendectomies, nerve sections, and the like. It is impossible to pick any one symptom which is characteristic, but certain forms of disorder occur more frequently than others. One large category into which many of the symptoms fall is loss of function. Under this heading come the anesthesias, blindness, deafness, and motor paralysis.

The presence of insensitive areas of the skin in hysterical states has been noted for many years. Charcot [13] stated that they constituted the pre-eminent *stigma* of hysteria. It is a matter of historical interest that in the Middle Ages when a woman was suspected of being a witch because she had trances

or spells, she was tested in the following way. A sharp needle point was applied over all the body surface and the discovery of an insensitive area, or "Devil's Claw," as it was called, was taken to be a certain sign of witchcraft. The skin anesthesias found in hysterical patients have certain distinctive marks. In the first place, the area involved follows the lines of what the patient conceives the disorder to be. That is, a "verbally" distinct part of the body, such as a leg or hand (the stocking and glove anesthesias), will be affected; and not a pattern determined by the nerve distribution.

In determining whether blindness or deafness is hysterical, the physician must first exclude any possible organic basis for the condition. After he has seen that there is nothing organically wrong with the eyes or the ears, he must next investigate the conditions under which the loss of function occurred. Frequently, these prove to be situations which were difficult, embarrassing, or traumatic to the patient. The classic illustration is that of a man who was about to address a large audience and felt very nervous about it. He suddenly became blind just before the time for him to speak. The connection may not always be so direct as this, but usually the study of the personal history will bring out relationships of this type.

In hysterical paralysis, the neurological examination will show an absence of the reflex alteration which typically accompanies a true organic paralysis; and frequently, the limb is carried differently than it is in a true paralysis. The reflexes remain normal and usually no atrophy of the muscles occurs, even after years of hysterical paralysis. In organic paralysis, the atrophy or wasting away of the muscles is generally pronounced. Again, the diagnosis of hysteria may be made upon the fact that a peculiar part, or pattern of parts, of the body is involved. Just as in the skin anesthesias, the dysfunction will not follow the true anatomical distribution of muscle function, or it may involve only some specific function. Certain functions of the muscles may be lost, while the same muscles are perfectly normal in a different activity. An example is writer's cramp, where writing becomes impossible although the hand can still be employed in all other sorts of fine motor coordinations.

The particular kind of symptom or part of the body affected is thought to be determined in three different ways: (*a*) associated context, (*b*) physical status, or (*c*) symbolic value. Symptoms based on *associated context* are those which probably really occurred in an appropriate and similar situation at some earlier time. For example, shortness of breath during a real flight from danger would reoccur as a sort of asthma when some idea of danger threatened the patient, either consciously or unconsciously. In other patients the *physical status* may include some weakness or lack of resistance

of some part of the body which forms the basis of symptom formation. The individual who has always had trouble with his eyes, who has had to be careful to avoid eye-strain, may show some type of visual dysfunction as an hysterical symptom. Third, the *symbolic value* of the particular bodily area may be such that it represents activities or functions that are not psychologically acceptable to the person. The person with great guilt and conflict over autoerotic practices may develop a sudden, organically unexplainable paralysis of one arm and hand.

Usually specific physical symptoms can be "cured" by psychotherapy (explanation, suggestion, hypnosis). Unless the basic difficulty which gave rise to the symptom is discovered and accepted by the patient in a way that makes it possible for him to live with his difficulty, there is every reason to expect that after the cure other symptoms will appear which will be just as disabling as those which were "cured." These patients are very suggestible and the physical complaints of those around them may be "catching." For example, under the stress of war conditions, the hysteric may take on the same complaints of the soldiers with whom he has contact. His head may ache as much as the patient in the next bed who has a fractured skull; he may be as deaf as the soldier whose eardrums have been ruptured in an explosion. Even though there may seem to be an obvious connection between the complaint and the conscious wishes of the patient (he wants to avoid front line battle and the headache or deafness develops) this fact does not mean that he is consciously "faking."

The symptoms of the hysteric patient seem, at first glance, to indicate either that there is something organically wrong with him, or that he is consciously falsifying his complaints. The essential point is that neither of these suppositions is true. No organic basis sufficient to explain the symptoms can be found, and upon close examination they frequently turn out to be only "reasonable facsimiles" of organically determined symptoms. They correspond to popular conceptions of physical disorders and diseases. On the other hand, they are not consciously falsified by the patient. He is not a malingerer. He is actually unaware of the basis or meaning of his troubles. It may well be that the symptoms serve a definite purpose for him. They may get him out of some uncomfortable or disagreeable situation, or keep him from doing something he feels he should not do even though he wants to, but he himself is not conscious of any such motivation.

Other hysterical symptoms take the form of amnesia (loss of memory; Chapter 28) and various trance states. In these, the normal consciousness is disturbed and the person responds in an automatic way. The patient may be possessed by one idea or a set of ideas to the exclusion of all else. Some

portion of his normal memories and habits is not available to him. He may not remember his name, his family, or his former life, but may realize something is lost and actually attempt to find out what it is. When he recovers from his condition, he has no memory for it or the things that happened in it. When this tendency to behave in an automatic way is combined with an unconscious desire to run away, he may wander many miles away from his home with no memory of his name or where he came from. This state is called an hysterical fugue. These amnesic periods are usually of short duration and the memory of the events transpiring during the state can sometimes be recovered under hypnosis. One study [2] of fugue states associated with amnesia demonstrated that in certain cases unconscious fantasies were lived out. The patients themselves, when they recovered the memory of the amnesic period, described their experiences as dreamlike. As a usual thing it has been found that the onset of the fugue state follows an emotionally threatening situation from which the person would like to escape. The fugue state is considered to be an unconscious mechanism occurring in an intolerable situation. During the fugue the individual loses his identity and distressing memories.

Dissociated and multiple personality

An unusual disorder of behavior which is regarded as a special variety of hysteria is *dissociated personality*. Although it is rare, it is so interesting that it deserves and has received much special study. Dissociation of this type is a more prolonged and complete variety of a fugue state. When the periods of automatic behavior are prolonged and systematized, independent of the usual personality, they are called "double" or "multiple personality." In this condition, there exist two or more personalities, each of which is so well developed and integrated as to have a relatively coordinated, rich, unified, and stable life of its own. Actually, such cases are rare. Various accounts of cases of this type have been published since 1817.[12] Dual personality was made familiar to the general public through Stevenson's fictional account of Dr. Jekyll and Mr. Hyde, but many of the true histories are quite as startling.

Probably the best known and certainly the most extensively investigated was the case of Miss Beauchamp,* studied by Morton Prince [10] over a period of years. Miss Beauchamp was a quiet, reserved, New England girl of good intellectual ability. Following a somewhat traumatic event, a transient state appeared in which she showed a different type of personality. The personality of Miss Beauchamp disappeared and was replaced by that of

* Pronounced Beech-am.

Sally, a mischievous little girl who delighted in tricks and practical jokes (which Sally played on Miss Beauchamp). While under the care of Dr. Prince, she developed several other distinct and different personalities. Each personality had its own train of thoughts, views, tastes, habits, experiences, and memories.

The following history illustrates the interesting and complex forms that dissociation may take.

CASE 4: * Mr. H. R., aged forty-two years, was an accountant of better than average intelligence who had gone on periodic alcoholic sprees. Following a particularly prolonged spree, he was taken to a psychiatric hospital. Before therapy could be started he disappeared and was not heard from for two weeks. On a second occasion he disappeared from home and when located several months later in another city he was working in a rather routine menial job. When asked why he had run away, he somewhat vaguely said that he couldn't take the things that were happening to him, and preferred not to try to change them. Later he said he left because he resented the way his wife pushed him around, could not stand the type of work he was doing, and so he started drinking to relieve the tension. He came voluntarily to a mental hospital to obtain help for depression, tension and alcoholism. On admission he showed some tendency to self-depreciation but said that he did not feel particularly depressed. He was somewhat rigid and impassive in expressive behavior, and reserved but friendly in his social contacts with other patients.

He was found to be an excellent hypnotic subject. It was possible to induce quickly a deep hypnotic trance following which he would carry out post-hypnotic suggestions. During hypnosis he could be "regressed" back to earlier periods of his life. During the age regression sessions he responded well to questions and was cooperative on psychological tests but gave responses somewhat more advanced than the chronological age to which he had regressed.

After the hypnotic sessions had been continued for several weeks it was found that multiple personalities appeared and an analytic investigation of these personalities was undertaken. Each personality had reported distinctively different dream material. Three different personalities in addition to the normal waking one appeared during the course of hypnotic sessions. *Little Harry* (an actual nickname of the patient in childhood) was the last personality to be revealed under hypnosis but was actually the first chronologically. Little Harry was four years old at every appearance but showed considerable variation in other respects. At times his vocabulary was restricted to the four- or five-year level and at other times it was completely adult. He consistently used his left hand. At one time he was in contact both with the early environment (four-year level) and

* Much of this material was secured from a case study by Margaretta Bowers Buch, M.D., Sylvia Brecher, M.A., and Lothar Gidro Frank, M.D. It is used with their permission.

with the present situation at the patient's home and in the hospital. At first he was cheerful, active, mischievous, and aggressive. Later on he was very sad and showed deep grief over the death of a pet dog. He revealed certain fears related to the four-year old environment. He both loved and hated his mother. He seemed glad when he was accepted by two of the other autonomous personalities.

Henry was another personality, passive, gentle, and idealistic. He was always sixteen years old but was in contact with all the environment and history of the total personality. Henry seemed very real with genuine emotional depth. It seemed likely that Henry was an expression of the patient's true sixteen-year-old personality at which time he had made an effort to gain the love and approval of his father. Subsequent to the death of a girl with whom Henry had been in love, Henry "withdrew" and Butch emerged. *Butch* had existed as a personality since late adolescence, and his age was now that of the patient. He was suspicious, cold, calculating, and much more hostile than Henry. The Butch personality seemed to be founded on identifications with a cousin of that name who had committed suicide at the time the patient was fourteen years old. Butch was intensely antagonistic to both Henry and Little Harry.

When not under hypnotic control the waking personality was *Dick*, who had no conscious knowledge of the other personalities except in his associations and his dreams (which he could not interpret).

During the course of the hypnotic sessions there was a marked increase in expressed hostility. Dick, who had previously been gentle and passive, became rather explosive and difficult to handle on the hospital ward. Later, increased anxiety and depression appeared and a serious suicide attempt was made. Because of the severe depression, electric shock therapy was given. Three shock treatments were given during hypnosis with the patient in the personality of Little Harry, the four-year-old. On each of these occasions, following treatment he was frightened, apprehensive and belligerent; on the other occasions, he was quiet and docile after shock. The depressive feelings had been common to all personalities but after the sixth shock treatment all personalities were happier and seemed more compatible. There now seemed to be no difference between Henry and Butch and all personalities were at their real age of forty-two. Shock treatments were discontinued since there was little evidence of depression in any of the personalities.

A few hypnotic sessions were carried on several weeks after the termination of shock treatment. The various personalities could still be brought out. The personalities Henry and Little Harry had gone back to the age levels of sixteen years and four years respectively. When asked why this had occurred Butch reported, "Perhaps they like it better. They are more protected and they don't have to do anything about what's going on now. It's not their responsibility." Dick said he thought there was no use of further sessions and asked to leave the hospital. He was thought to be in a much improved mental state at time of discharge.

This history shows the complicated interrelationships of several different dissociated states within a single individual. No single traumatic event had occurred which could be interpreted as the basis for the extensive dissociation that took place. Although the multiple personalities of this patient were brought out for study under hypnosis, they evidently had dominated the patient at intervals during his life.

The significance of histories of multiple personality has been questioned on the ground that suggestion from the investigator might be the cause of the appearance of the different personalities in hysteric persons who have a tendency to dissociation. The evidence indicating the genuine nature of multiple personality is as follows: [12]

About one hundred different investigators have reported more than one hundred such instances ranging over different centuries and different parts of the world. Most of the cases had never heard of other such persons. In all the various case histories there are many common elements. The essential question is how suggestion became so effective and dissociation so complete in these individuals. In multiple personality the secondary personality organization may afford an escape from stress, and in this sense it plays a protective role. The form of this role may be passively acquired through suggestion, past history, or a living example; or it may be formed actively as a synthesis of various emotions and thoughts that are broken off from the normal stream of consciousness.

Although the authenticated cases of multiple personality are rare, the fact that they *ever* occur is highly interesting and important. The evidence from these rare cases indicates that two or more self-aware autonomous individualities may exist within the same human being. Independently organized activities seem to proceed without intercommunication. These breakdowns of the normal integrating processes are usually interpreted as the result of two or more conflicting impulses in an individual whose mental synthesis is weak.

Background

Actually, there is no way of estimating the incidence of hysteria in the general population. Many real physical complaints may be covered by an overcast of hysterical symptoms, while hysterical features may be mixed with other symptoms in many types of mental disease. It is generally believed that hysteria is more common in the lower intellectual strata, but this thesis has never been conclusively demonstrated. It is usually stated that hysteria is more frequent among women than men, but even this is not always true.[11]

As to the hereditary or constitutional factors involved, some such predisposition has been postulated, but, again, the evidence either pro or con is meager.[9]

There is more information available about the personality traits of hysterical persons than of many of the other types of patients. In addition to a strong tendency to dissociation, hysterics are usually psychologically "infantile," particularly with respect to their emotional reactions. They tend to be egocentric and selfish in a childish way. They show a lack of self-control and general immaturity of impulse and motivation. They claim attention from others and enjoy being the center of attention. They avoid taking responsibility, and many of their reactions can be viewed as methods of escaping from unpleasant situations, although they may not be consciously aware of it. They act like "spoiled children." Most of the character traits of the hysterics appear early in life and are clearly developed by the time of adolescence.

The usual concept of *hysterical reactions* should be separated from the concept of hysterical personality. Hysterical reactions may occur in practically anyone, if the stress of the situation is sufficiently painful or unpleasant, and if dissociation or physical complaints offer a possible mode of escape. The hysterical personality, on the other hand, is a consistently maladjusted style of life distinguished by its infantilism, egocentricity, poor integration, and a strong tendency to dissociation. This basic inadequacy may be genetically determined or it may be due to the persistence of childish habit patterns in adult life. There is no conclusive evidence for or against either hypothesis.

Psychological explanations

Hysteria has as a characteristic feature dissociation, a state of disturbed integration of conscious life in which thought systems or action systems separate themselves from the main stream of consciousness. The ability to do one thing while attending to something else is part of everyday experience. The typist whose fingers continue to fly while she is thinking or talking of something else, and the person who knits a sweater and reads a book at the same time, furnish examples of activities which are dissociated from the central stream of awareness. Dissociations of this type are normal and have been called "selective inattention." More profound dissociation may occur in the normal personality during strong emotional shock. Under such circumstances, the person may be stunned and unaware of things going on around him, behaving in an automatic way. In the normal person, such

an episode is short-lived; he soon "finds himself" and shifts his attention back to the course of everyday events. The dissociated state in hysteria may be set off by simple everyday occurrences, is outside of voluntary control, and is prolonged.

Two different interpretations of the basis for hysterical symptoms can be made. Hysteria can be viewed as the result of a conditioning process,[8] dependent upon a particular constellation of factors. The individual needs to escape from an intense emotional conflict. He has certain temporary somatic complaints, illnesses, or disturbances of function. This specific physical disability is associated in his past with a certain syndrome. This syndrome provides an escape from the difficult situation. If the individual has an extreme fixation on bodily conditions with an attendant restriction of the range of reaction, the presence of the specific disability will result in the occurrence of hysterical symptoms. The syndrome will persist as a form of invalidism which enables the individual to escape from his conflict. This interpretation is that of a process of conditioning in a person tending to dissociation, that is, a restriction of consciousness which excludes certain impulses and tendencies.

A different type of interpretation of hysterical symptoms (based on psychoanalytic psychology) is that which relates them to the concept of conversion of mental conflicts into physical complaints. In hysterical symptoms the innervation reaching the voluntary muscles giving rise to automatic responses is said to come from bodily tensions or impulses which are unconscious. These impulses bring about physiological or motor expression in the same way that conscious impulses reach overt expression. The individual is not aware of the source of this innervation. The impulses that form the basis of the symptoms are unconscious because they have been repressed. They are unacceptable to the conscious self. In terms of physiology the innervations from unconscious, repressed impulses are no different from the innervations which give rise to expressions of emotion (weeping, blushing, sighing). However, the hysterical conversion is not an adequate substitute for the repressed tendency, it does not relieve the tension, and thus becomes a chronic, circular, self-reinforcing sort of innervation.

Neither of these theories explains the vacillating quality of many hysterical symptoms nor the reasons why they can be shifted so readily under suggestion, hypnosis, or therapy. Neither do they explain why one person develops hysteria and the next person does not. Although these psychological theories are meaningful, one still has to draw on some concept of constitutional tendency to explain the fundamental difference between hysterical patients and normal people.

Summary

Hysteria is one of the oldest recognized forms of abnormal psychology. It has been the subject of clinical observation, medical and psychological speculation and experimentation, and popular interest for centuries. Most authorities hold that hysteria is essentially a psychological problem. It occurs in individuals having a poorly organized personality, a tendency toward dissociation, and a suggestible nature. The psychological process of dissociation, as an escape from unpleasantness, is quite common. This one symptom does not, of itself, constitute hysteria. The hysteric patient is essentially a neurotic person whose chief symptoms are (*a*) physical complaints without recognizable organic basis, and (*b*) dissociated states which are deep and prolonged.

There seems to be no doubt but that multiple personalities do occur and that they are, in all probability, an extreme form of the normal process of dissociation. They afford interesting material for psychological study and shed light on a rare, but important, variety of psychopathology.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 7 Anxiety, Compulsive and Reactive Neuroses

IT IS APPARENT FROM THE PRECEDING CHAPTERS THAT THERE ARE similarities between the psychological reactions of physically ill people and of neurotics. The differences in mental symptoms are mainly those of degree rather than of quality. In Western civilization there are, in all probability, as many people suffering from mental illness (neuroses and psychoses) as there are physically ill people. Some physicians have said that the three most common afflictions of mankind are colds, constipation, and neuroses.

The symptoms or complaints of neurotic patients are diverse. Various authorities at different times have put the symptoms together in groupings and given the groupings different names. Other authorities have divided neurotic patients into different groups in terms of some theory or explanatory hypothesis. Since the basic etiology—the real cause—is essentially unknown we will consider certain of the neurotic reaction types in terms of their most outstanding symptoms; anxiety, compulsion-obsession, neurasthenia (fatigue and weakness), and reactive depression.

Anxiety states

The distinction between anxiety hysteria and anxiety neurosis, originally made by Freud, has been replaced by the broader concept of anxiety states. The psychological picture in these conditions is one of episodes of anxiety together with definite physical complaints. These symptoms are of diverse form and degree, but mostly they are the common physical signs of fear: palpitation of the heart, breathlessness, dry mouth, various gastrointestinal sensations, and tremors.

In some cases the source of fear may be some simple, relatively harmless object in the environment. These morbid fears or *phobias* are usually directly

associated with a fear of the recurrence of an anxiety attack. The person has an attitude of exaggerated fearfulness toward the situation, or some element in the situation in which a previous anxiety attack occurred. In some cases the situations which produce anxiety seem to do so because they revive anxieties which occurred during infancy or early childhood; in other cases, the emotion seems to have been displaced onto a neutral object or situation for which the person need feel no sense of responsibility. In other words, the patient's troubled mind (his internal conflict) is the prime mover of the feeling of anxiety, but this anxiety may suffer a displacement to some object in his environment, such as dogs, open spaces, or subways. The symptom picture of anxiety is probably the most common and basic to all the forms of neurosis. The feelings of apprehensiveness, phobia, or panic which are experienced by these persons are so severe that the sufferers will go to any length to avoid the kind of situation which originally aroused the feelings, or which may arouse them again. The following history is illustrative of the anxiety state:

CASE 5: A thirty-three-year-old man suffered an acute attack of anxiety one year prior to admission to the hospital and has had repeated attacks of the same type since then. At the time of the first attack, he complained of severe pains in his heart, great difficulty in breathing, and fear of death. His wife said he was pale and trembling during an attack. These attacks occurred frequently during the night. He would awaken, gasping for breath, belching, and panic-stricken. He said that there did not seem to be any specific factor that brought them on but that they were more severe when he was alone. During his hospitalization it was noted, however, that his symptoms seemed more exaggerated when he had an audience. He talked at great length of his suffering to anyone who would listen. He was of very superior intelligence with excellent educational and cultural background. Throughout his school days he had been a trouble-maker. This same pattern continued in the hospital. He was extremely critical of the hospital and uncooperative with its routines. He complained that his family had always rejected him, which complaint was not supported by any actual evidence. He was unable to adjust himself in his marriage with an intelligent, emotionally stable woman. He had always been hypercritical of others, although resistant and resentful of any criticism of himself. He was described by his family as thoughtless, selfish, and "touchy." He made many demands upon his family and wife but refused to accept any responsibility as far as they were concerned.

Compulsion neurosis

Persons suffering from this type of neurosis feel impelled to carry out certain actions over and over, although they usually realize that there is no

logical reason for such repetition. If questioned as to why they must do these things, they may say that they feel most uncomfortable and uneasy unless they do them. Forms of compulsion or obsession which are fairly common are handwashing, object touching, or object counting. Such repetitious tendencies may occur in mental as well as motor activities. Certain thoughts, over which they have no control, may keep running through their minds. The compulsion to numerous repetitions of an act or series of acts is sometimes so strong that the individual may require hours to carry out such simple tasks as dressing or eating. These conditions are extremely difficult to cure. The following history is illustrative of the condition:

CASE 6: A forty-year-old business man was admitted to the mental hospital for treatment because of compulsive behavior. For the past six months he had washed his hands twenty to thirty times a day. He also felt it necessary to count steps leading up to a door and to touch the door a certain number of times before passing through it. There was also a complicated ritual involving the number *3*. These and other rituals that he felt forced to carry out interfered with his ability to function efficiently in his work and were both annoying and embarrassing to him. He had always been a scrupulously neat person, overconcerned with minor details, and fastidious in his personal habits. In the past six months he had shown increased irritability and agitation over his wife's unwillingness to follow his rigid schedules in running the house and felt she was at fault for failing to be cooperative.

There was no history of mental disease in the family. His mother was described as extremely affectionate with him. She dressed and undressed him completely until he was eight years old. As a child he was frequently constipated and he recalled that until the age of fourteen he was given at least two enemas a week, always administered by his mother and always over his strong protest. He recalled that his father had been partial to his older brother but accepted this with no conscious ill-will toward either one.

During psychotherapy, it became evident that he was basically very aggressive and hostile. These tendencies were usually controlled and concealed so that he gave the impression of being very shy, timid and rather ineffective. With psychotherapy he gained some relief from his immediate symptoms, but continued to be rigid and meticulous. His basic problem of inner hostility could not be completely worked out.

Neurasthenia

Originally the term *neurasthenia* was used to designate all cases where the mental conflicts were transferred to, and showed themselves as, organic

dysfunctions or ailments. Today, the use of the term is restricted to those cases showing weakness and chronic mental and physical fatigue, together with many physical complaints which are of a hypochondriacal nature. Inability to concentrate, insomnia, and loss of appetite may form part of the psychological picture. The patients frequently attribute their symptoms to overwork, but it has been conclusively shown that rest brings no solution to their problems. Although autointoxication was once believed to be a cause, biochemical studies have failed to support this contention. The most generally accepted interpretation today is that the condition results from profound and prolonged emotional maladjustment. The physical complaints which are a prominent part of many of the cases are believed to be secondary accompaniments rather than causes. Persistent emotional states are fatiguing. Preoccupation with some mental conflict or insoluble problem is known to shift over to preoccupation with one's physical condition. Hence, the fatigue and the shift of attention are thought to bring into prominence the physical complaints. The following history is that of a typical condition of neurasthenia:

CASE 7: This thirty-four-year-old housewife was admitted to the Psychiatric Institute on the advice of a general practitioner who had been treating her physical complaints without success for over ten years. Along with a series of vague aches and pains, there was excess fatigability and lassitude which disabled her so extensively that she could not attend to her household duties. She complained constantly of feeling worn out. Her outstanding emotional reaction was one of resigned martyrdom. Although the history of physical complaints went back many years, the extreme fatigability had continued over the past four years. Physical examination indicated that she was in good health. She showed no evidence of gross mental deviation, but her conversation and train of thought centered around her physical complaints.

She had been a timid, easily frightened child. She reported that her childhood and adolescence were spoiled by the disagreements between her parents. The mother was intensely jealous of the father and made continual recriminations against him. The patient remembered that she used to try to cover up for her father so that the mother would not start on one of her tirades against him.

Her physical complaints (headaches, stomach disorder, and vague pains in the back) started the second year after marriage. Her relationship with her husband became unhappy and she was overconscientious and oversensitive to any slight criticism he made of her or of the way she ran the house. Her housekeeping activities engrossed all her time so that she had few contacts outside the house. Finally, housekeeping became so tiring to her that she required long rest periods.

In the hospital she told her doctor how she resented her husband. She related

this to her childhood resentment of her father. She never used the direct attack method that her mother had used and which had made her childhood so painful. Instead, her efforts were directed towards making a "good home" with such great conscientiousness that any lack of appreciation by her husband was intensely resented by her. With psychotherapy she gained some insight. The extreme passivity and suppression of her own feelings that had characterized her entire life were somewhat lessened. With the development of new interests and outside activities, she developed more confidence in herself and understanding of her own needs for self-recognition.

Reactive neurosis

In some neurotics the outstanding symptom is depression. This depression differs from the psychotic depression, seen in the manic-depressive psychosis or in involutional melancholia, (Chapters 9 and 11) in that here the depression seems to be fittingly related to some event or existing condition. These neurotics are actually overreacting to a real situation. There is something real in their lives about which to be depressed. We can, to an extent, understand their feelings, although there seems no reason for the prolonged grief. Most people "snap out of it"; "forget it"; "quit crying over spilt milk." These neurotics cannot quit.

They are serious suicide risks. Not many neurotics are truly suicidal, but those who do commit suicide or attempt suicide are usually of the depressive variety.

If the situation to which the patients attribute the depression changes for the better, they usually recover, although they require more time for the recovery than does the average person. Many individuals of this type improve rapidly following electric convulsive therapy. This condition is typified by the following case description:

CASE 8: A thirty-seven-year-old business man became extremely depressed, tearful, and unable to carry on his work. He had always been well liked, vocationally competent, and well adjusted in his marriage. There had previously been no evidence of mental instability. At the time when his business began to fail and his savings were lost, he became despondent. He lost his appetite, developed insomnia, and wept frequently. He felt very guilty over the fact that he could no longer support his wife adequately. He finally became so depressed that he was completely unable to go to work. He became sexually impotent and developed feelings of hopelessness. After his admission to a hospital, he came to realize that his difficulty was entirely within himself and believed there were no external influences except his financial losses which determined his condition. His plans for the future were obscured by feelings of hopelessness. He complained

of a "feeling of fog" in his head. He also had some gastrointestinal complaints which were relieved by a controlled diet. Later, he complained of pains in his arms and shoulders, which were thought to be of a neurotic origin. The patient showed improvement after four months in the hospital. After discharge, he obtained a new position and carried out his new duties in a successful fashion.

Personal experience

There is a great deal of information available as to what a neurosis feels like from the inside. Many neurotics enjoy recounting their symptoms in detail. The tendency to be introspective is a characteristic part of the picture. Because so many of their feelings and attitudes are, in part, common to us all, we can understand their reports, whereas it is often impossible to understand the reports of psychotic patients.

The autobiography of Leonard [5, 13] provides an excellent and intelligent report of many neurotic symptoms. He was a college professor who suffered from a severe neurosis over a long period of years. In his autobiography he took issue with the concept that overreaction is an outstanding characteristic of the neurotic person. He held that such strong emotional reactions are specific to those situations which bring out the neurosis. He further believed that in such situations, which are essentially different from any of those faced by the normal, the reaction of the neurotic is appropriate and not truly an overreaction. Again, rejecting the view that egotism is a prime neurotic symptom, he pointed out that in some cases it may also be the result of compelling physical symptoms, such as pain and the problem of relief from this pain.

In writing of his physical symptoms, Leonard described the two years of agony he suffered from his eyes. He tried glasses and new glasses, oculists and new oculists, all of whom gave the report that there was nothing wrong with his eyes; but the feeling of half-ache, half-shooting pain continued. He said that he experienced many different kinds of suffering. For two weeks he had a pain localized in his jaw, for which the dentist could find no organic cause. At another time, he experienced excruciating pain in the region of the rectum, lasting for five to twenty minutes. He later came to attribute these pains to reinstatement of specific pains experienced in early childhood. At another time, because sounds tortured him, all bells in his home had to be plugged and everyone had to tiptoe across the floor. In this hypersensitive state, he said all sounds had to him the nerve-racking quality of chalk squeaking on a blackboard.

He developed a strange fear of water, and when only a short distance

from shore in a boat or in swimming, he experienced feelings of dread and terror. He later interpreted these as a feeling of distance from safety, believing that the land was equivalent to safety to him. He recognized the phobic nature of these feelings, but no attempt at mastery or cure was effective. Later, these fears spread so that the feeling of insecurity recurred in extreme form when he was any distance (even a block or two) from his own home. This became the most disabling phase of his neurosis. He described feelings of a sinking loneliness, an uneasy, weird isolation, as though he were all alone in the universe, of sudden and nameless horror at being separated from home and its security. At times, he became panicky over his panic. The recognition of these feelings as mentally abnormal precipitated a secondary panic. In other words, he became increasingly upset at the thought that this abnormality was a desperately critical symptom. These feelings are commonly reported in people having anxiety attacks; they are afraid of becoming afraid.

From prolonged introspection, Leonard found that these phobic experiences started in a state of terror (dread) without content. Generated by past experiences, this state ranged in severity from vague anxiety to intense feelings of impending death. Sometimes, the form which these feelings took was determined by the original experience. At other times, the form seemed to be determined by the intellect trying to seek adequate explanation for the feelings. Thus, the mind rationalized the terrors into secondary forms or pseudo explanations. The real causes were unknown to the neurotic sufferer; therefore he made up the causes, frequently in the form of a physical illness or disease. For example, a rapid pulse accompanied by gasping breathing (physical manifestations of fear) was falsely interpreted as evidence of a serious cardiac disease.

The relation between neurotic symptoms and early traumatic history, which Leonard worked out over a period of many years, is both long and complicated, but his description is an interesting psychological document. He objected to many of the classic formulations regarding the neuroses. (For example, the "sickness benefit" of many neurotic symptoms.) He maintained that fifteen years of thinking about and experiencing neurotic symptoms had given him a firmer basis for theory, than have the secondhand reports upon which the psychopathologist depends.

Facts and figures

No one can do more than guess how many neurotics there are in the general population. Some physicians and surgeons in the general practice of

medicine have estimated that two-thirds to three-fourths of the patients who come to them with complaints of some organic illness are primarily neurotics whose organic symptoms are merely an expression of their neurosis. Other medical men say that they rarely see a neurotic patient. A group of three hundred consecutive patients at Mayo Clinic [12] were found to consist of almost one-third functional disorders, mainly neuroses. This is not evidence of the incidence of neurosis in the general population but it does represent the number that seek help from physicians. Estimates of the incidence of neurotic persons have been based on surveys made of college populations and on industrial disability of persons for whom medical care was automatically provided. These estimates vary between 5 and 27 per cent of the groups studied. A very conservative estimate would be that about 3 per cent of the adult general population (more than four million persons in the United States) are more or less disabled by neurosis at any one time.

This disability is not so severe that it requires hospitalization, save in a relatively small number of cases; 11,677 individuals, diagnosed as neurotic, were first-admitted to all the mental hospitals in the United States in 1946. Hospitalization for neurosis is rare before the age of 14, or after the age of 64. The most frequent age at hospitalization for women is between 25 and 35, and for men, between 35 and 45. The educational level is higher than in most other types of mental disorder and corresponds closely to that of the general population. There are no reliable data concerning the incidence of neurosis in different national and racial groups. The comparative statistics on the frequency of the different varieties of neurosis, that is, hysteria, anxiety state, and so forth, are so dependent on the particular standards or preferences of the psychiatrists who make the diagnosis that they are not meaningful. As stated previously, there is overlap among the different varieties; anxiety occurs in all varieties of neurosis, conversion symptoms may occur when the predominant symptoms are neurasthenic.

Studies of the onset of neurosis show that the following circumstances may precede hospitalization: financial troubles, death in the family, sex conflicts, and marital difficulties. Investigations of the general nature of the personality of these individuals before hospitalization indicate that the majority of cases showed personality deviations of a neurotic sort for the greater part of their lives. Exaggerations of the symptoms to the point at which they were disabling led most of the patients to hospitalization. The personalities of these patients frequently show the following characteristics: overwhelming need for affection and approval, hypersensitivity, feelings of inadequacy, and overconscientiousness.

It is a common observation that similar stress situations produce neurotic symptoms in some persons, and no such symptoms in others. The fact that some individuals do succumb to neurosis is attributed to poor childhood care and training, disturbances in psychosexual development, faulty habit organization, prolonged malnutrition, physical disability due to injury or illness, or to a genetically determined lack of resistance, that is, poor heredity. The bulk of attention has been directed toward the factors other than heredity which may lead to the development of a neurosis.

The amount of "psychopathic tainting" (blood relatives who have had some form of nervous or mental disorder) varies considerably among the various types of neurosis. Different investigators have reported that between 10 and 60 per cent of all relatives have this tainting, with 4 to 7 per cent having the same sort of symptoms as the patient whose family history is under investigation.[7, 8]

A great deal of available evidence suggests that there is a constitutional predisposition (a genetically determined lack of resistance) to neurotic behavior. The amount of stress necessary to bring out such reactions varies among individuals depending on whether or not they have this predisposition. It is reasonable to assume that, if there are relatively few stresses in the environment, a person may not show obvious neurotic tendencies, even though a constitutional inadequacy is present. For example, observers have noted that some patients were able to carry on without too much trouble with one or two constant sources of tension, but broke when a third or fourth was added. Such a person might get along in an unhappy marriage, plus living with his wife's relatives, so long as his job was secure and interesting; but shifting to another job which he disliked would precipitate a breakdown. There seems to be wide individual difference in the tolerance for stress and tension before actual neurosis occurs, just as there are individual differences in recuperative power. Some patients recover almost as soon as the immediate stress is removed, others recover more or less slowly, and a few never recover.

Slater [11] has made a careful study of all background factors and concluded that the neurotic constitution is preponderantly determined by a very large number of genes, each of which has small effect. The effect of genes which are qualitatively similar is additive and becomes manifest by producing a reduced resistance to various forms of environmental stress, and so facilitates the appearance of neurosis. The effect of genes qualitatively dissimilar is to produce the different types of neurotic symptoms. In brief, the neurotic person has more than average susceptibility to environmental stress.

One of the interesting things about neurotic patients is that no matter what kind of therapy is employed, about the same proportion show marked improvement or relief from the immediate symptoms. (Whether or not these improvements are maintained permanently is another question.) In hysteria [3] it has been reported that approximately 80 per cent achieved complete symptomatic relief or considerable improvement when treated by psychoanalysis, hypnosis, or ordinary psychotherapy (see Chapters 32 and 33 for therapeutic methods). A report of five hundred cases of neuroses treated by general practitioners [1] showed 60 to 70 per cent of patients much improved, which figures are not significantly different from the therapeutic success obtained by psychiatrists and psychoanalysts.

Physiology and pathology

Palpitations of the heart, dilated pupils, digestive disturbances, shallow, rapid breathing, vertigo, and disorders in sweating are frequent occurrences during a neurotic episode. All of these physiological changes are functions of the autonomic nervous system. Investigations of these changes made by physiologists and biochemists have produced confused and confusing results.[6] On one day a patient may show marked evidence of disordered function; the next day, no disorder whatever. There is good evidence of increased variability of function in the neurotic, as compared to the normal. There is a high correlation in the neurotic group between the variability on tests of physiological function and (*a*) poor cardiovascular reactions, (*b*) impairment in psychological test performance, and (*c*) frequency of neurotic complaints. In spite of the high correlation, there is no good basis for individual prediction of the relationship between any of these functions. The variability probably implies some sort of fatigue, together with over- or undercorrection or loss of adaptability of physiological function, which ultimately results in irritability and dysfunction of certain organic mechanisms.

In spite of evidence to the contrary, both from physiology and pathology, it is commonly held that neurosis is psychogenic and that the physiological changes are associated phenomena, just as indigestion is associated with intense fear. This viewpoint is largely due to the fact that psychotherapy has been relatively effective in bringing about improvements in these neurotic conditions, while organic therapies have been relatively ineffective.

There are several kinds of nutritional deficiency in which the overt behavior and mental life of the individual become identical with that of the ordinary neurotic patient. This information is of pertinence to the field of abnormal psychology, since many of the symptoms are similar or identical

with those of neurosis. (The effects of vitamin deficiency will be taken up in Chapter 22.)

Ten cases of chronic salt deficiency, incurred by living in the sustained heat of the tropics for some time, were studied by Saphir.[9] These patients originally had been assumed to be suffering from neurosis. They were nervous and apprehensive, irritable and depressed without apparent cause. They had vague physical complaints, aches and pains over the body, easy fatigability, lassitude, headaches, as well as frank anxiety. In all cases there was a prompt relief of mental and physical symptoms when the level of chlorides in the blood was brought up to normal.

In another investigation the physiological and psychological effects of experimental semistarvation were observed.[2,10] A three-month full diet control period was followed by six months of severe undernutrition, and then three months of controlled nutritional rehabilitation. Thirty-six normal young men served as volunteer subjects. As the semistarvation period progressed, the men experienced transitory and sometimes protracted periods of depression. Depression reached truly pathological proportions only on rare occasions and only in a few individuals. Apathy developed in the group and was attributed to the repeated failure to carry on "normally" during the experimental stress. Irritability became so marked that it was a group problem. Although the subjects were aware that they were hyperirritable they were not able to control strong emotional responses and outbursts of temper. The subjects rated themselves, comparing semistarvation with their normal condition. They said they were lacking in self-discipline and self-control, subject to indecisiveness, restless, sensitive to noise, unable to concentrate and markedly "nervous." The experimenters concluded that the period of semistarvation resulted in personality alterations in the entire group which could be classified as "psychoneurotic." Among the 36 subjects there were nine whose symptoms went beyond the usual range of these induced personality changes. With "hindsight," it was thought that certain of these nine had latent personality weaknesses but the experimenters said that they would have been unable to predict with any degree of certainty before the start of the stress, which individuals would develop "abnormal" reactions. In general, the psychoneurotic symptoms of all subjects receded during the twelve weeks of controlled rehabilitation and a follow-up after an additional twenty-one weeks of rehabilitation showed that the men were back to their prestarvation normal. The experimenters said that the change which the semistarvation brought about was an "experimental" neurosis.

These salt and food deprivation studies show that neurosis can be produced and relieved by changes in nutrition. We cannot conclude that any

considerable fraction of persons suffering from neurosis are nutritional deficiency cases. Most neurotic patients are characterized by long term deviant "styles-of-life" which cannot be related to any well established physiological basis. Whether future research will show that neurosis has a physiological rather than a psychological basis is completely speculative.

Psychology

A great many investigations have been made of the psychological alterations in neurosis. Usually, the findings have emphasized one or another particular function. The results obtained, using the methods of developmental psychology as they shed light on the entire personality of the neurotic, are of particular interest at the present point.

Landis, *et al.*[4] made a study of the growth and development of personality in 153 normal women and 142 female psychiatric patients of whom 50 were hospitalized neurotics. Since much of our present-day thinking concerning the nature of neurosis has emphasized the role of psychosexuality in the development of the neurotic personality, special attention was devoted to the early sex development in every individual, although adequate information was obtained on other factors which influence the developing personality.

In spite of the fact that these neurotic women showed a wide range of reaction patterns during childhood and adult life, there were certain characteristics which were common to many of them. The history of the psychological growth and development of the psychotic and normal women was found to be essentially similar, while that of the neurotic women was different from either the normal or the psychotic. The neurotics did not report particular experiences that differentiated them from either the psychotics or the normals in the sense that something had *happened* to them, but they did report differences in their style of life, which differences were apparent from early childhood onward. *The neurotic style of life was characteristically emotionally nonadaptive.* While there were no differences from the normal in the type of early sex information which these women reported that they had obtained, their complaints and criticisms of their families in this respect were severe. Many of them blamed their disgust concerning sexual matters upon the unpleasantness of their early sex information, or upon their ignorance of the subject. In describing their relationships with other members of the family, they frequently cited instances of family conflict. There was no evidence that the actual past situations were different from those lived through by the normal women, yet it was clear

that the neurotics reacted more strongly to these situations. They reported excessive anxiety concerning masturbation. While the number of neurotic women who reported childhood sex aggressions was no greater than that in the normal group, the emotional significance which they placed on the experience was much greater than that placed by the normals. The neurotic women did not deviate from the normals with respect to physical constitution, physical development, or medical history.

The environment in which the neurotic women had developed showed no essential differences from that in which the normal women had grown up. However, the way in which the neurotic women described these environmental influences was reported in very different terms from those used by the normal person. The parental relationship and home situation were said to have been sources of conflict, instability, and friction. There was evidence of factors in the early home background that might be expected to produce unhealthy emotional development. The adult heterosexual interests and attachments of the neurotic women were somewhat different from those of the normal women. They were apt to continue a childish sort of emotional relationship to their parents and to individuals outside of their family, and were rather late in reaching any independent adult status. More neurotics than normals told of general incompatibility in marriage.

The neurotic style of life showed a clear, consistent trend from early childhood to adult life. Such women tended to view themselves as unfortunate individuals and to blame their parents for most of their difficulties. The neurotic style was manifested in their reaction to early sex information, contact with other children, attitude toward sex, attitude toward discipline and affection shown by the parents, inability to free themselves from family ties, general inability to get along and handle their own problems in life, and inability to adjust in marriage.

Certain of these neurotic personality characteristics were particularly related to the immediate symptoms of the disorder—the preoccupation with personal problems to the exclusion of any outside interests; the feelings of self-reproach, inadequacy, and guilt; the inability to get along in the usual environment; and the prevailing anxious mood. These are all characteristics of the present neurosis. Before these symptoms became acute, the story of their life history revealed that similar or equivalent tendencies had always been common to them.

The neurotic style of life developed in a person, probably of psychologically inadequate constitution, who had been exposed to factors conducive to insecurity and instability in early childhood. It seemed likely that one unfortunate combination of events and reactions in infancy or early child-

hood led to another, and that the series of such unhappy experiences gave rise to the immediate symptoms of neurosis in adult life.

Summary

Psychologically, the neuroses are styles of nonadjustive reactions to the problems and conflicts of everyday life. Neurotic individuals may employ the adjustive techniques that are common in all human behavior but these techniques are distorted and overworked so that they fail to achieve their purpose. Many of these cases give evidence of psychological immaturity; they wish to find relief from their problems by depending on other people in a childish way. They are unable to accept life or themselves on even a semiobjective basis. They are prone to tenseness, worry, and distress over facts that cannot be helped but must be faced. They are vacillating and uncertain as to what they want and what they should do, whether they have done right, and whether they will fail to meet their self-established goal. They experience great suffering and discomfort but they are unable to break away from their habitual style of nonadjustive behavior.

Among the outstanding symptoms of neurosis are anxiety, irrational fears, sensitiveness, feelings of guilt, obsessive thoughts, compulsive acts, tenseness, and hypochondriacal ideas. Certain physical complaints are also common; insomnia, indigestion, undue fatigue, cardiac distress, and vague, indefinite aches and pains. It is possible to explain the reasons for and meaning of many of the physical complaints in the basic psychology of the neurotic person himself, but the explanation is not conclusive.

It is probable that some constitutional predisposition to neurotic behavior exists which determines whether or not the personality will manifest neurotic behavior because of outer stress and inner conflict. The factors in the early life history, such as having neurotic parents or an unhappy childhood also contribute to the adult individual's ability to withstand stress. Therefore, both constitution and early history must be considered as joint factors in determining neurotic tendency.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 8 *Traumatic Neuroses*

THE TERM "TRAUMATIC NEUROSIS" IS APPLIED TO ANY FORM OF NEUROSIS that develops shortly after a physical injury and in which a definite relationship between the neurosis and the injury can be assumed. Huddleson [11] defined the term *posttraumatic neurosis* as a "psychogenic or nonstructural nervous disorder, shortly following a physical injury." Frequently there is a period of a few weeks or months between the time of injury and the onset of the neurotic symptoms. This has been called the "meditation period." The complaints in traumatic neurosis are in no way different from those of other varieties of neurosis already described. Hysterical symptoms and anxiety states are common. Many such patients complain of headache, backache, and general weakness. Loss of function, as in paralysis, blindness, and deafness, may occur but it is somewhat less frequent. The following history is typical:

CASE 9: A sixty-year-old painter broke his leg when some scaffolding gave way under him. The leg was set, no complications developed, healing was uneventful. After the injury had healed, the doctor told him that he could return to his job but he kept putting off going back to work. He began to complain of headaches and feelings of dizziness. He was unable to sleep at night, although he had never been troubled with insomnia previously. He felt depressed and he worried about his future employment because he thought that he was getting too old to continue painting. A slight tremor of the hands appeared which gave him further cause for concern as to his ability to carry on with his work. After the workman's compensation payments stopped, he started to work again on a part-time basis but continued to complain of numerous physical ailments and to feel depressed. His complaining attitude was a real change from his earlier personality according to his wife's report. He had always been a hard worker, well liked by his fellow-workers, and considerate and conscientious toward his family. After his accident, his conversations were usually monologues on the subject of his aches and pains so that his friends started to avoid him. After about a year's

time, there was a gradual diminution of the physical complaints and the patient was able to resume work on a full-time basis.

When the complaints center around some specific injury, such as a broken leg or sprained back, it is difficult, as a usual thing, to establish when the neurotic symptoms started. In general, the neurosis is assumed to begin at the time when the health and physical fitness, which are expected to parallel tissue repair and restored organic function, fail to appear. Instead, a gradual falling off in efficiency occurs, usually about three or four months after the injury. Most traumatic neuroses occur within six months after injury, but exceptional cases have been described after intervals of more than six months.

Many neuroses, following injury, are complicated by the psychological effects of the workmen's compensation laws. Since compensation is awarded for partial or complete impairment of working capacity, and since any neurosis developed after injury is legally held to be a disturbance of work capacity in the same sense as direct injury, a "subsidy for psychogenic illness" is created. While there are no accurate figures on the relative proportion of neurotic to nonneurotic complaints for which compensation is given, it has been estimated that 15 per cent of the applicants for compensation base their complaints on symptoms which are essentially neurotic.

Many studies have shown that it is not the injury alone, but the assurance of remuneration, that prolongs the duration of disability. For this reason, it is believed best to have early, lump-sum settlement of all compensation claims. A suit hanging fire over months or even years encourages the litigant to prolong and exaggerate his complaints and to drift into habits of illness which make treatment difficult, if not impossible. Continued payments, as a pension, remove the incentive to improve, and for this reason a lump-sum payment is preferable.

At first glance, it might appear that the patients are merely exploiting and exaggerating their physical disability. If they can get paid for not working, why work? In certain cases, there may be such conscious motivation, that is, the patient may be a malingerer; but in others, the disturbance is more basic and not of conscious origin. The desire for financial reimbursement may reinforce and perpetuate a traumatic neurosis, once established. Severe injuries, for which compensation awards are high, are less likely to give rise to traumatic neurosis than less severe injuries.

"Malingering" means the conscious feigning of illness or the intentional exaggeration of some actual physical complaint. In traumatic neurosis, in either military or civilian life, the question of whether or not the patient is

a malingerer frequently arises. Psychiatrists believe that pure and simple malingering is rare and that a careful clinician should have little difficulty in detecting most of these cases because the simulation is usually imperfect in some detail. Certain symptoms, such as the physiological signs of anxiety, cannot be imitated. There is more possibility that hysterical symptoms will be confused with malingering; but, again, if one has some psychological understanding of conversion symptoms, they are not too hard to distinguish from consciously feigned complaints. In differentiating between malingering and anxiety neuroses, it has been found that the malingerer is unlikely to describe previous symptoms and increasing feelings of fear which are characteristic of anyone having a true anxiety state. The crux of the question is the conscious motivation of the patient. If the symptoms and complaints are based on unconscious motivation the case is, properly speaking, a neurosis and the individual is not malingering.

The malingerer usually gives himself away by inconsistencies in his story or actions and by "poor" imitations of the complaint he reports. An interesting example of detection of malingering on psychological tests was reported by Hunt and Older.[12] Experience has shown that simulated feeble-mindedness on psychometric examination can easily be detected. It is easy to "act dumb" but not easy to duplicate intentionally the type of mistakes typical of true feeble-mindedness. The test performances of a group of feeble-minded subjects were compared to those of normal subjects who were instructed to try to appear feeble-minded on the test. There were significant differences between the groups in the average score on each of the three psychometric tests which were used. The "malingering" normals differed from the retarded group in that they attempted to do more items on the tests, so that the pattern of performance as well as the quality of certain responses were clearly differential. It is difficult, if not impossible, to give a good imitation of feeble-mindedness on a psychometric test.

It actually happened in a compensation case that the lawyer for the defense was questioning a plaintiff who claimed that a permanently disabled right arm had resulted from a railroad accident. He demonstrated that he could lift his arm only slightly. The lawyer then asked how far he could raise his right arm before the accident. The plaintiff obligingly lifted the "injured" right arm high above his head.

Malingering and mental disease are not mutually exclusive. One can be both a neurotic and a malingerer at the same time. Malingering in normal individuals is rare. It usually occurs in those of inferior psychological make-up. The attitude of the general public toward such behavior in war may be stated in the following conjugation.

I am suffering from neurosis
You should pull yourself together
He is a coward and malingerer.[16]

The person who experiences neurotic feelings and reactions knows how uncontrollable they are; but when they occur in someone else, they seem to be intentionally assumed and the result of a lack of "will power" to overcome them.

Background factors

Among the background factors of traumatic neurosis, usually the outstanding one is a long history of neurotic tendencies or psychological maladjustments. The history of many posttraumatic neurotic patients shows that they were self-centered, had feelings of inferiority, had an inability to face difficulty with courage, and a tendency to seek refuge in excuses and illness.[8] In persons having such tendencies, any new stress or difficulty may precipitate a neurosis. None the less, there are some cases of traumatic neuroses in which the individual showed no previous evidence of neurosis. These are usually explained by saying that dissatisfaction with one's work or feelings of incompetence may be so strong that physical injury provides a welcome relief from an uncomfortable situation. A further background factor is the general social attitude that the employer should be held responsible for any accidents that occur. This shifting of responsibility may encourage the development of traumatic neurosis in certain cases.

Among the precipitating causes of the neurotic symptoms after the accident, are mishandling by the examining physician, too much sympathy and solicitousness from friends and relatives, and fear of loss of security. The physician may alarm the patient unduly and make him feel that he has a very serious condition with little chance of recovery. The patient's fears and worries about himself become fixed by some incidental remark by the doctor, especially if his friends express great concern over his condition which reinforces his belief that he is terribly injured. He knows of other cases in which legal suit against a company resulted in a substantial award. He develops a sense of resentment against his employers because he has experienced pain and disablement and is anxious to get satisfaction. Because of his very real worries about his condition, he feels his source of livelihood may be permanently interfered with. While he is receiving compensation, he is financially secure, as well as a person of interest and attention. There is often little incentive provided to get him to resume his normal line of work.

Traumatic neurosis often follows head injury. In a follow-up study [2]

that was made at the Boston City Hospital, two hundred head injury patients were studied six months or more after injury. Sixty-four of these patients were found to have developed posttraumatic neuroses, most of which were anxiety states in individuals who before injury were said to have been well balanced personalities. The onset of anxiety occurred when the patients were faced with the necessity of returning to their former activities concerning which they had mental conflicts. As long as the physical injury kept them away from their work, there was no evidence of anxiety. When the anxieties developed, they were related both to the details of the accident and to the environmental problems. Among these two hundred cases of head injury, thirty-six developed nightmares after an interval of one or two weeks after they had left the hospital. None of these nightmares repeated the actual form of the accident. In order to understand the mental dynamics of this group of head injury cases they were compared to the studies which had been made of those injured in the Boston Cocoanut Grove fire.[1]

The Cocoanut Grove disaster in 1942 killed 491 and injured many more. A sudden fire swept through a crowded nightclub, the exits became blocked, people were trampled, battered, and burned. The smoke and fumes were so severe that the victims felt choked, as if they were dying. The follow-up study of forty-six survivors who had been injured, indicated that over half of them had developed a posttraumatic neurosis, usually of the anxiety type. There was no relation between the degree of injury and the presence or absence of neurotic complications. There was some relation between the occurrence of unconsciousness and the later neurotic developments. Few of those patients who became rather quickly unconscious (suffocation, head-injury, or the like) and so had a blotting-out of part of the memory of the horrifying events developed neurotic symptoms. The majority of patients who had remained conscious through all the terrifying incident developed posttraumatic neurosis with fear reactions immediately following the event. Many of these latter patients, immediately after the fire, started to have nightmares which repeated the disaster. Of the twenty patients who developed no neurotic complications, fifteen had lost consciousness during the fire; and of these fifteen cases, twelve cases had been unconscious for more than one hour. A survey of the cases nine months after the fire indicated that in those who had developed real anxiety states there was little improvement, while those described as having "general nervousness" had recovered.

The comparison of the nature of the traumatic neurosis of the head-injury cases and the survivors of the Cocoanut Grove fire brings out several

interesting points. The incidence of traumatic neurosis seems to depend upon environmental and emotional factors related to the accident. The terrifying experience of the fire gave rise to proportionately more traumatic neuroses than did the head injuries sustained in "everyday" types of accidents. The basis of neurosis seemed different in the two groups, fear in the case of the fire survivors, and conflict in the case of the head-injury cases. The fear neuroses were characterized by emotional disturbance and nightmares which repeated the actual scene of the fire. These disturbances and nightmares started immediately following the experience. The conflict neuroses, typical of the head-injury cases studied, developed after an interval when the patients were physically ready to return to their former activities. Nightmares occurred in the latter group one or two weeks after the patients had returned home. Another point is that neither type of reaction is purely transient but may effect the personality adjustment for a considerable time after the injury.

Traumatic neuroses of war

Conditions peculiar to war markedly increase the frequency of traumatic neuroses. This increase is noteworthy in light of the fact that there is no corresponding increase in the incidence of psychosis during wartime either among the services or in civilian life. In other words, the physical and psychological events of war precipitate or give rise to neurosis but not to psychosis. The same combinations of symptoms occur in the war neuroses as in those of civilian life with the exception of an acute form of war neurosis, which in World War II was called "combat fatigue" or "combat exhaustion."

The American observations on war neuroses start with the publications of Horsthorne [10] and of Da Costa,[5] following the Civil War. At that time, observations and studies were made of abnormal reactions to effort, such as undue palpitation of the heart, exhaustion, pain in the center of the chest, and breathlessness in the absence of any demonstrable organic defect of the heart or blood vessels. These symptoms have been variously called "soldier's heart," "effort syndrome," "disordered action of the heart," and "neurocirculatory asthenia." [6] These terms came back into use during World War I, when a great deal of attention was given to the problem because of its frequency and seriousness.

World War I left as a heritage the term *shell shock,* which was applied to many of the neurotic war casualties. The name came from the fact that the cause of these psychological deviations was assumed at first to be actual

concussion. It was believed that the concussion caused changes in the central nervous system; or that the atmospheric pressure changes, produced by the exploding shells and the carbon monoxide gas liberated, resulted in the psychological symptoms of cerebral concussion and carbon monoxide poisoning.[14] With prolonged observation, this interpretation was found incorrect. Identical symptoms occurred in soldiers far behind the front who were never exposed to gunfire; shell shock was rare among prisoners and wounded; the symptoms disappeared with suggestion or hypnosis; and the organic complaints that appeared did not fit in with any type of known neuropathology. The existence of sudden dramatic improvements also argued against the presence of any basic organic pathology. Thus, the etiological factors were assumed to lie in the field of psychological trauma rather than organic pathology, and the term *traumatic neurosis* gradually supplanted the term *shell shock*.

When World War II began, the medical profession, as well as the general public, was much more alert to the possible psychological effect of military service and battle experience upon emotionally unstable individuals. World War I had shown the value of group tests in screening out many who were psychologically unfit. World War II saw the initiation of further advances in psychological testing and screening. The pressure of having to examine large numbers of individuals within a short period of time made it impossible to eliminate all of the potentially unfit or emotionally unstable individuals from induction into military service. The recognition, treatment, compensation, and rehabilitation of these "mistakes" constituted a serious problem, both during the war and in postwar periods.[4] It is probably true that even the most perfect screening system would not have been able to eradicate the threat of war neurosis completely. Many soldiers who broke down in combat were known to have been fairly well adjusted in civilian life and the potential neurosis could not have been detected by any available test or psychiatric interview at the time of induction into the military service.

However, many neurotic casualties of war showed definite evidence of emotional instability in their previous personality make-up. The psychological situation in these cases was practically the same as it is in many other forms of neurosis. Unstable individuals who could not withstand the additional stress placed upon them by the war situation showed the same pattern of symptoms which they might have had under stress in civilian life; namely, anxiety, hysteria, or neurasthenia. Because the acute phase of the condition came when such persons were in military service, they have been classified as suffering from traumatic or war neurosis.

One interesting study of the neurotic constitution of two thousand neuropsychiatric military casualties in World War II was made by Slater [19] in an English emergency hospital between November 1939 and June 1941. He looked into the family histories of all these patients, reporting on positive histories. A positive family history was one in which one or more of the parents, brothers and sisters, or children had suffered from definite neurotic illness, psychosis, epilepsy, or from some form of psychopathy (such as drunkenness, chronic shiftlessness, or violent and brutal habits.) Table 2 is drawn from Slater's figures and gives the percentage of positive family histories in certain relevant groups.

Table 2. Per cent of positive family histories in certain groups of neuropsychiatric casualties in World War II *

Diagnosis	*Number of cases*	*Per cent of positive family histories reported*
Organic states (physical)	74	37.3
True head-injury	87	32.1
Anxiety neurosis	710	56.7
Hysteria	392	50.8
Reactive depression	232	55.7

The figures indicate that a positive family history is found more frequently in patients suffering from neurosis than in patients with organic states or head injury. This tabulation does not separate out those suffering from the specific syndrome of acute war neurosis, in whom, presumably, the positive family history of nervousness would be lower.

The real significance of neurotic constitution should be considered in relation to the "threshold" for breakdown. The inadequate, unstable personality will break under slight provocation; and the more stable the constitution, the greater will be the resistance to shock or to the constant fatigue and stress of warfare. The question of neurotic constitution, therefore, comes to these points: How much can this individual stand before he breaks? If the person is completely free of any neurotic constitution, will any amount of stress cause a break? These are theoretical questions for which there is no answer. If neurotic constitution is a distinct predisposition, then those who do not have it will be free from all forms of neurosis in spite of great stress.

It was the opinion of many psychiatrists treating war casualties that the strongest, most normal and well-balanced man will break down if the strain is great enough and prolonged enough. Even the best balanced, most stable individual has certain vulnerable psychological spots. But, when such an

* E. Slater, "The Neurotic Constitution," *Jour. Neurol. Psychiat.*, 1943, *6, 5.*

individual does break down, the disturbance is transient and does not turn into a serious or lasting mental illness.[18]

Acute war neurosis

One form of war neurosis, usually designated as "combat fatigue" or "combat exhaustion," had a characteristic symptomatology that did not fit into the usual categories of neurotic reaction. This was a transient biological reaction to the emotional and physical stress of combat that may or may not progress to a definite neurosis. To avoid the unfortunate connotations of the term neurosis, the syndrome was called *combat fatigue.*

The early reports of this syndrome were made by Sargent and Slater [17] from their studies of the military patients who had been through the evacuation at Dunkirk. Most of these men had shown a satisfactory adjustment to army life and most of them were of normal intelligence and personality. They had lived through the catastrophe of military defeat and the evacuation from Dunkirk, which had been marked by continuous physical exertion, bodily danger, loss of sleep, insufficient and irregular meals, recurrent bombardment, and the sight of comrades and civilians being killed around them. Their psychopathological symptoms were surprisingly uniform. They consisted of physical and mental exhaustion, revealed either through tension and anxiety or through listless apathy; neurological signs of a functional nature (coarse, irregular tremor, and exaggerated reflexes); sleeplessness with terrifying, bad dreams; a feeling of inner unrest; and a tendency to be startled by the least noise (particularly the sound of airplanes).

A very characteristic symptom of the acute war neurosis was the repetitious, catastrophic nightmare.[13, 15] These dreams were usually a reenactment of some vivid situation and were so intense that sleep habits were severely disturbed, and the feelings of fear that were aroused by the dreams continued upon awakening. Another common reaction that appeared in exaggerated form and frequency was that of startle. This reaction was elicited by any loud or sudden noise, such as the slamming of a door. The patient's physiological response to the sound was usually tremor, sweating, dry mouth, dilated pupils, and palpitation, while the psychological reaction was one of panic, so that the patient screamed, cried, and tried to escape by crawling under the bed or running from the room. In addition to these two outstanding symptoms (battle dreams and startle), there was in some instances a personality change, so that the patient became irritable, intolerant, sullen, and morose. In a few cases, there was a continuous feeling of guilt which was accompanied by emotional depression.

For practical purposes, four general criteria for the diagnosis of acute war neurosis have been laid down, namely: (*a*) a stable personality prior to the appearance of the traumatic emotional disturbance; (*b*) a combat experience of real intensity; (*c*) objective evidence of subjective anxiety (the patient sweats, trembles, flushes or pales, swallows frequently or smokes incessantly); (*d*) symptoms disappear (patient recovers) in a relatively short period of time.

The following history illustrates the pattern of symptoms shown by many of these cases:

CASE **10:** Corporal C was a physically healthy, athletic individual, twenty-two years of age. His childhood and early development were characterized by an outgoing and self-reliant attitude. He completed two years of high school and then voluntarily left school to take a job. He enlisted in the army when he saw he was going to be drafted and rather enjoyed the active, masculine atmosphere of army training. He was made a corporal after six months. He admitted that in the original landing in North Africa he was very frightened, but led his men adequately through one sharp scrimmage before that phase of the campaign was completed. His unit was in continuous combat for six weeks during the early days of the campaign for Tunisia and he was involved in a withdrawal in the face of heavy enemy superiority. Many men in his unit were killed around him. He went for days with very little sleep and ate only emergency rations. During this phase of action, he felt an increasing irritability and restlessness, particularly when things quieted down for a while. After his unit was withdrawn from action, he became even more tense, could eat but little at a time, and his sleep was repeatedly disturbed by terrifying dreams of the battles he had lived through.

His particular squad had been reduced to six men, and when reinforcements came up he made every effort to conceal his increasing tenseness and nervousness. However, shortly afterward he made a violent scene when one of the new men accidentally stumbled and discharged his rifle in the darkness. When, after a week of rest, his unit was ordered back into action, there was a reactivation of his old apprehensions but also a feeling of relief at getting away from inactivity. By the time he had been back in action three days—during which time he had had very little sleep—his squad was assigned to attack a machine-gun position and he and his closest friend were pinned down by the machine-gun fire. His friend, who was about fifteen feet away from him, was seriously wounded. His friend's screams of pain filled him with panic, but he tried to work his way over toward him. When he had crawled about half the distance, a direct hit killed his friend. Shortly thereafter, another shell came even nearer the patient. He remembered nothing of the succeeding three hours, and finally became fully conscious in an aid station.

He had been found wandering aimlessly about the battlefield crying and calling for his lost friend. In the aid station he was confused, could remember

nothing that had happened, stared stupidly at the people around him, and repeated his friend's name questioningly. When a plane passed near the aid station, he suddenly changed from his apathetic stupor and ran screaming from the room until he was caught. He was given large doses of sedatives for three days but when their effects wore off, remained anxious and confused, so that he was evacuated to a rear-area hospital for further treatment. There, rest, medication, and open discussion of his experience with the medical officers brought about recovery.

The prognosis of recovery for cases of acute war neurosis (combat fatigue) was favorable if suitable treatment was begun before the symptoms became habitual or "set."[7] The severe symptoms usually disappeared after a short term of rest and therapy in which reassurance was given. This therapy was most effective when started as soon as possible after the patient had been removed from the combat area. Many soldiers who suffered from an acute war neurosis were able to return to active duty, but early return to active combat was considered inadvisable.

The immediate treatment which was used in these cases was to provide prolonged rest and ample food. Anything from simple sedatives to a deep drug narcosis was used. Of particular value seemed to be a therapeutic method which has been called "narcoanalysis."[7,9] (See Chapter 32.) This method consisted of the induction of a drug narcosis, during which the patient was encouraged to talk about his battle experiences. Sometimes he did this spontaneously, but usually, because of existing amnesia, suggestions from the therapist were necessary to reinstate these earlier experiences. The patient was told that he was on a battlefield, and under fire, plus whatever details were known of the traumatic situation. In some cases the patient told his experiences as a story, but many times he would act out the original situation with accompanying strong emotions of fear, anxiety, or anger, as the case may have been.

Under the influence of the drug, there was a release of the intense, repressed emotions. This release was gradual, so that the patient became able to deal with his intense emotions in a more rational manner than before, and the catastrophic reactions that occurred previously dropped out. There was gradual synthesis of the emotions and memories of the traumatic experience as these emotions were brought back into consciousness and reenacted, and with this synthesis there was often recovery.

In general, most cases of acute war neurosis (combat fatigue) cleared up in a short time no matter what type of treatment was given, as long as rest and adequate food were provided. Occasionally an acute neurosis would

develop into a persistent anxiety state or hysteria but this was not common.

Six thousand overseas veterans discharged from the army on the basis of psychoneurosis (all forms) were studied [3] in a follow-up survey made six months or more after discharge. This survey showed that 11 per cent were improved, 64 per cent were not changed, and 25 per cent had more acute symptoms after return to civilian life. Again the figures demonstrate that neurotic soldiers were not malingering. They were not "nervous in the service." They were in most instances suffering from basic personality disturbances.

Psychology

The stability of personality prior to breakdown is strongly emphasized in the descriptions of acute neuroses of war. Therefore, it is of particular importance to try to determine just what it was in the war experience that disrupted the psychological integration. Some investigators who worked intensively with these cases felt that the most effective factor in precipitating acute war neurosis was fear. Continued threat of serious injury and death, together with the sight of injured and dead companions, had a cumulative effect. Prolonged fear without hope of reprieve finally accomplished what a single exposure had not been able to do.

In addition to fear, the lack of opportunity for rest, the shortage of proper food and water, and the irregularity of supplies played their part in wearing down the physical resistance of the soldier. Prolonged exposure to explosions, particularly when the soldier was in a position of enforced inactivity, was another factor facilitating the break. These positive factors occurred against a background of a completely changed life routine. The soldier was separated from all his previous emotional attachments; his old habits of thought and action were completely disorganized; and the social values of his civilian life were no longer operating. In other words, the majority of the sources of security in his past life were absent. If his military training had not given him confidence in his leaders, complete efficiency in the use of his fighting tools, and a sense of pride in, and loyalty toward, his fellow soldiers to take the place of all former sources of security, the chances of developing neurotic symptoms increased.

Some investigators [18] have held that explanations in terms of fear, deprivation, and the like are superficial. For example, it was pointed out that the fear in acute war neurosis was not related solely to injury or death, but also to overwhelming hostile, aggressive feelings. Combat means not only

danger but aggression. Most persons have an entire life pattern built around the attitude that hostility must be repressed. Open expressions of hostility thus produced feelings of strong guilt. Even though the feelings of hostility and expressions of hostility were necessary to maintain oneself in combat they aroused the same fear and anxiety within the individual as if they had occurred in peace time. When the individual was unable to control these overwhelming feelings the symptoms of combat fatigue developed. According to this interpretation, the basic emotion which underlies the symptoms in all these cases is the force of the individual's own hostility. Whether or not the individual broke down depended upon the strength of his aggressive drive in the overwhelmingly difficult and dangerous situation and the strength of the control of this aggression.

There are numerous psychological explanations of why men break under stress. Almost any one of them seems quite logical and well-founded. But there has been no adequate explanation of the reason why these reactions (nightmares, irritability, anxiety, startle, and insomnia) should persist after the stress has been removed.

Summary

Some psychopathologists find so little difference between traumatic neurosis and other forms of neuroses that they are disinclined to separate them as a special group. However, most investigators who have worked with cases of this type hold that they should be considered as a distinct subgroup within the neuroses in general because of the differences in the cause, form, and outcome of the syndrome. The patterns of symptoms that were described in Chapters 6 and 7 may also be found, but there is an acute form of traumatic neurosis which has a characteristic form and course.

The basic characteristic of the traumatic neurosis is fixation on the traumatic event without displacement of either anxiety or guilt to other subjects, and without the accumulation of new neurotic features over a period of time, such as usually occurs in the other forms of neurosis. The two main sources of traumatic neurosis are industrial accidents and battle casualties. Both groups constitute important social and economic problems.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 9 Manic-Depressive Psychosis

THE MANIC-DEPRESSIVE PSYCHOSIS IS A SEVERE FORM OF PSYCHOPATHology, marked by either an acute press of activity and excitement (mania), or by an unreasonable melancholia (depression). The true cause and the rational treatment of this disease are unknown. There are those who hold that manic-depressive psychosis is one disease; those who say that it is only a group of psychological symptoms without a common basis; and those who say that it is the inevitable outcome of unhealthy habits of thought and behavior. Despite the possible doubt surrounding the assumption, the most systematic way to deal with this variety of psychopathology is to consider it as a single disease process.

About 8 per cent of mental patients admitted to mental hopsitals for the first time are found to be suffering from manic-depressive psychosis. In spite of the severity of its course and symptoms, it has a high rate of remission or recovery. Generally speaking, the behavior of such patients is not too peculiar. In most instances we think we can understand why the patient behaves as he does and we can, without too much effort, imagine ourselves behaving similarly. Although the mania and the depression seem vastly different, psychological analysis shows them to be somewhat similar.

Case history

CASE **11:** Miss M was admitted to Psychiatric Institute early in February. She was excited and confused but said she was eager to be in the hospital and to receive treatment because she could not stand other people suffering because of her. She and her family said that her acute emotional state was due to a frustrated love affair. Within two days she became quiet, depressed, slow-moving, soft-spoken, and tearful. She complained of a feeling of worthlessness, at the same

time giving an impression of being quite egotistical and resentful. Mental examination showed that she was well oriented as to time, place, and person; her memory was good; her thinking capacity diminished because of her hopeless attitude; her insight faulty; and her judgment poor. All findings on physical examination were negative.

Her condition improved so that in March she was allowed to go home to her family. The improvement proved transient and she was returned to the hospital in May in an acute melancholic condition. This depression gradually lessened so that in September she seemed cheerful, although timid and thoughtful. Until mid-October she vacillated between periods of confused depression and bursts of excited, boisterous activity. One day she announced that she had a sudden feeling that she was well again and that all her trouble was over. She became overactive, talkative, and elated. She compared her elation to her depression by saying: "This condition is going on increasingly more and more, both mentally and physically. Thoughts are going through my head. It is now excruciatingly wonderful; before it was excruciatingly awful. I am so happy I want to cry. Before, no emotion was genuine, sincere, or pleasant. At times I thought I was happy but I felt I never was sure. Now it is wonderful and just as intense in the other extreme. It is something uncomfortable. I remember how I used to feel and I don't ever want to feel that way again."

She had to be transferred to a disturbed ward where her overactivity and excitement increased day by day. She was given sedatives but remained very noisy and obtained little sleep. She was frequently placed in a continuous bath for the purpose of relaxation but continued her rapid fire of conversation throughout the day. She showed flight of ideas, rhyming, singing, and screaming. On one occasion she said, "How did you get to know Dr. Carr? I know, in a Ford. I will show you a ticket. [A ticket for what?] For Mary, Queen of Scot! [Who played in Mary of Scotland?] Mary Browning, the Barretts of Wimpole Street! What pole? The thinker, the trolley horse. [Whose horse?] The horse on a treasure hunt. [Upon observing the doctor writing.] Did I ever explain to you that a sheet of paper is an inclined plane. A sheet of paper with lines on it is an ink-lined plane. An inclined plane is a slope up and a slow pup is a lazy dog." On the ward she would strip off her clothing, yell, dance, spit on others, curse and scream obscenities. This conduct continued for three weeks before she grew somewhat quieter; but she remained talkative and excitable until early December when she calmed down to such an extent that she could again be sent to the convalescent ward. During January and February she continued to be somewhat overactive, excitable, talkative, and irritable. Early in March her behavior was once more normal, so that she could be discharged from the hospital. Her entire first cycle of depression and mania lasted a little over a year. During six years following this original illness she has been in a mental hospital on two occasions, once for eight months and once for thirteen months, each time with symptoms similar to her first attack.

Not all patients of this sort show both the depression and the mania. Kraepelin [11] reported that the first attack is a depression in 60 to 70 per cent of patients. Two thirds of the depressions are followed by a remission; one third by mania and then usually by remission. When mania is first, two thirds are followed by remission and one third by depression and then usually by remission. In a statistical survey of the outcome of over eight thousand manic-depressive patients Pollock [20] found that in more than half of the patients there was no recurrence of attack of sufficient severity to cause re-admission to a mental hospital. Patients who were aged between 20 and 40 at first-admission had fewer recurrences than those whose first-admission occurred before 20 or after 40.

There are certain psychological changes which are marked in both mania and depression, and other symptoms which are peculiar to only one of the conditions. In both states there is a basic mental inhibition, a partial paralysis of volition, attention, perception, and association. Except in delirious states, consciousness is clear and hallucinations rare or inconsequential. Memory remains unimpaired for the life before the illness, while, because of the emotional disturbance and unclear perception, memory for events during the illness is fragmentary. Judgment is defective, with frequent delusions which fit the predominant emotion—expansive in mania, hypochondriacal and self-accusatory during depression. There is no real deterioration during or following either state.

Personal history

Since most persons who suffer from this disease recover, and since only rarely is there any mental enfeeblement or deviation during subsequent normality, many excellent autobiographical accounts [2, 8, 10, 12] have been published. Although these accounts differ among themselves, it is possible to pick out from them many elements in common and so to understand better the psychological experiences and psychotic manifestations which occur during the illness.

Initially, there is a marked diminution or loss of self-control, which loss the person recognizes, at least for a short period of time. The depression or the excitement is recognized as being exaggerated and ill founded but uncontrollable. This results in a variety of dissociation which persists in varying degree throughout the illness. Kipling's line, "Stood beside an' watched myself be'aving like a bloomin' fool," characterizes such an experience very well, indicating as it does that the person has some knowledge of the fact that he is acting strangely. There are lapses in the memory of the patient

for periods of time during the illness. On recovery there may be blanks in memory for days, weeks, or months. Usually these lapses correspond to the more severe phases of the excitement or depression as observed and recorded at the hospital.

Both the excited and depressed phases are marked in the mind of the patient by an exaggerated irritability and sensitivity. They remember being greatly hurt and unreasonably irritated by events or chance remarks which were in reality innocuous. One patient described this state which occurred when she was in an excited phase as follows:

"Although I was quite willing to acknowledge that the hospital was doing the best that it could, nevertheless suspicion was there too, and I was eager to support it. The best that could be done! Just that had been known to fail so often! Surely there might have been some other way! All the while, down underneath there was resentment, seething, turbulent, threatening, something unaccountable that thumbed its nose at mental processes and formulae. Just then I wanted more than anything else, someone who would question the judgment of the hospital, someone who would dispute it to the bitter end. There came back to me a well-remembered saying of Dr. Meyer's: 'The psychosis is an experiment of nature.' The phrase which I had always enjoyed, now roused a violent protest. 'Why should I be one of nature's guinea pigs?' Feebly, the logical counter query rose: 'Why pray, should I not?' I had no satisfactory answer for either question . . . As the nurse and I walked back to my room, everything seemed hushed and still. 'You will have to keep quiet now;' she said, 'you must go to sleep.' Oh, I *must* go to sleep, must I! was my unspoken reply . . . Bars! Human stupidity and callousness. What lay beneath the well-regulated surface of this hospital? What worship of routine and habit would I find here? Since all society was honeycombed with these, surely this place would not be free of them! I had little hope that the hospital would help me. I had begun to feel that, possibly, the physician might; but that would be through something of himself, not because of any observations by nurses. I wouldn't have given a fig, just then, for all the notes of all the nurses on the place." *

The disorganization of thought which marked the acute excitement was described by this same patient as follows:

"There appeared increasing use of bizarre symbolism, progressive fragmentation, and loss of sense of continuity. . . . [The] memory of making a cake illustrates the fragmentation and the gradual intrusion of symbolic ideas. . . . I tried to follow what the instructor was saying. I kept hearing her voice, caught phrases, separate bits of what she said, and found myself wondering why all this seemed difficult. As the work progressed, a change came. The ingredients of the cake

* J. A. Kindwall, and E. F. Kinder, "Postscript on a Benign Psychosis," *Psychiatry*, 1940, *3*, 529.

began to have a special meaning. The process became a ritual. At certain stages the stirring must be counterclockwise; at another time it was necessary to stand up and beat the batter toward the east; the egg whites must be folded in from left to right; for each thing that had to be done there were complicated reasons. I recognized that these were new, unfamiliar, and unexpected, but did not question them. They carried a finality that was effective. Each compelling impulse was accompanied by an equally compelling explanation." *

The acute mental distress and suffering which are the outstanding experience during the phase of depression were described by another patient in this way:

"Suffer? And what is the verdict of people who have undergone the most excruciating physical pain, and then been mentally ill? These people say: 'Rather all the physical illnesses—every one of them—over again, than mental breakdown.' Or, more simply, 'That's the real hell.' Torture. There is never any getting away from it. Your body seems shaken by it. It gives you no rest. It is like a mental flagellation—always, day and night. The minute you wake up it is there. All day long it is there. Whatever you try to do it stands in your way. And sometimes it is like a big, threatening obstacle. But you have to put up with it. You think: 'Isn't there something the doctor can cut away?' It is like a monster, it is like a growth. It presses down on you. It mocks you. It exhausts you. It makes your thoughts go spinning around like a squirrel in a cage, and it wears you out just as going around in a circle physically would wear you out. 'If I could only press a lever to stop this whirring,' you say to yourself. Yet you *cannot stop*. You cannot 'snap out of it.' If only you might. For just a minute, for just a second. No wonder so many depressives long for death.

"Perhaps the best way to explain it is to say that it is like an unpleasant noise; but a much more unpleasant and awful noise than any one who is sane could ever imagine. Think of a noise like that, the worst, most grating, most nerve-racking noise you ever heard; then imagine that it never stops, never, never for an instant. Imagine that you recognize this; that you know the noise will never stop. That it will go on in this way forever, tearing at your nerves, pulling at your muscles, goading at your mind, deriding you, reproaching you, sneering at you! Then maybe you will not blame us for thinking of suicide. Then maybe you will no longer say, 'They do not suffer.' Yes, we suffer." †

Another common experience is "mental weakness," particularly during recovery. It is as if the mania or depression had so exhausted the mental processes that the patient can only think, respond, or decide with the greatest difficulty. This weakness is described by some recovering patients as confusion, indecision, or unwarranted sensitivity. Return to normal mental vigor

* J. A. Kindwall, and E. F. Kinder, *ibid.*, 530.
† E. Krauch, *A Mind Restored.* New York, Putnam, 1937, 95–96.

seems to be mainly governed by time. The recovery is *slow* but relatively constant and complete.

Facts and figures [13]

Among the first-admission patients to the mental hospitals of the entire United States in 1946, there were 12,078 manic-depressive patients who constituted 8 per cent of the new admissions. There were about 50,000 manic-depressive patients resident in the mental hospitals of the entire United States during the same year, constituting about 10 per cent of the entire resident population of mental hospitals. Of every 1000 children born alive in the United States, according to present expectancy, 5 will at some time during their lives be hospitalized for this disease. The average age of patients admitted to the hospitals with this diagnosis has been steadily increasing from 30 years in 1913 to 44 in 1946.[14] The disease is 20 per cent more prevalent among women than among men.

During the past forty years the annual rate of first-admissions to mental hospitals in the United States of persons suffering from manic-depressive psychosis has decreased from 12 to 8 per 100,000 of the general population of the country aged over 15.[19] This decrease is probably due to the more frequent use of other psychiatric diagnoses since there is no comparative decrease (actually there is a slight increase) in the number of hospitalized mental patients in the same age range which includes manic-depressive psychosis. The decreasing rate is not associated with any economic or social change, wars, or depressions. There is no real difference between the frequency of the appearance of this disease among persons who live in the city and persons who live in a rural environment. In New York State hospitalization for this disease is about 50 per cent more common among Negroes than among the white population, and somewhat more common among those of Irish birth or Irish parentage than among those of other national origins.

Of every 100 manic-depressive patients under treatment during any year, more than two thirds will be discharged as greatly improved or recovered. Each attack of the illness usually ends in complete remission, in the sense that the individual loses his psychotic symptoms and is said by his friends and relatives to be of the same personality and intellectual status as he was before the onset of his disease. In a follow-up study in 1939 of over 300 patients who had been hospitalized between 1912 and 1931, Lundquist[16] found that 92 per cent of all manics and 80 per cent of all depressives recovered. (This was before the discovery of shock therapy.) Failure to recover was greatest among depressives aged over age 30 and manics over

age 45 at the time of the first attack. About half the manics and two thirds of the depressives had only one attack. The duration of attacks was 6 to 10 months in three fourths of those aged under 30 years and 9 to 17 months in three fourths of those aged over 30 years. The use of shock therapy has decreased markedly the average duration of both the manic and depressive attack.

The statistical reports indicate that the onset of the psychosis often follows physical illness, loss of employment, or financial loss. A pyknic type of physical constitution and a cycloid type of prepsychotic personality make-up are found in about a third of these patients. The cycloid form of temperament is that which is characterized by emotional instability, irritability, and a tendency to egocentricity and minor mood swings which in a diluted form are similar to the manic and depressive episodes of the disease itself.

Manic-depressive psychosis occurs in 0.44 per cent of the general population irrespective of their genetic background. Various investigations have reported that from 15 to 39 per cent of the parents of these patients suffered from the same disease; 7 per cent of their brothers or sisters; and 3 per cent of the grandparents. In one study of identical twins it was found that in 16 of 23 pairs both members were affected by the disease, while in the remaining 7 pairs only one member was affected. Generally speaking, geneticists hold that the genetic determination of the disease is specific; that if any person has inherited this specific determiner, he may develop manic-depressive psychosis (not some other psychosis), though he will not inevitably do so if the proper precipitating circumstances do not occur.[9] Various investigators have given evidence that the nature or stress of the environmental precipitating circumstances are not so significant for the development of manic-depressive psychosis as they are for most other forms of psychosis.

History of the manic-depressive concept

The description of mania and of melancholia as forms of abnormal behavior survives among the fragments of the most ancient medical literature extant. The phenomena marking these types of disordered behavior were described in the Bible and in the early Greek tragedies, as well as in ancient medical descriptions. The long, involved history of description and theory dealing with mania and melancholia need not concern us at present. The interested student can find an excellent exposition of this material in Burton's [4] *Anatomy of Melancholy,* first published in 1621.

Falret and Baillarger between 1850 and 1854 brought together a number of observations which led them to believe that, in addition to mania and melancholia as separate disorders, there was a circular or double form in which the two appeared alternately. In spite of this formulation, most writers and systematists continued to speak of many different forms of mania and melancholia with but little reference to the fact that the two might possibly be associated. In 1899 in the sixth edition of his *Textbook of Psychiatry,* Kraepelin [11] first formulated the concept of the manic-depressive psychosis pointing out that simple mania, simple depression, melancholia, and circular insanity were all forms of a single disease process in which there were certain recurring fundamental features in spite of the wide difference in external manifestations. He believed that this condition was marked by recurring features which give a uniform stamp to all of the varieties of clinical manifestations and afford a fixed point for the prediction of the outcome of the illness. He further held that these forms of abnormal behavior pass over from one to the other without recognizable boundaries so that they may, and often do, replace each other in one and the same case. He pointed out the generally favorable prognosis for any single attack, the chance of repetition of attacks, and the significance of heredity and of the physical constitution in the determination of the disorder.

Meyer [18] took issue with the concept of manic-depressive psychosis as it was formulated by Kraepelin. He held that this condition was not a disease, as such, but rather a behavioral deviation shown in the total integration of the organism in which definite situations, reactions, and types of personality must be evaluated. He called this condition *thymergasia.* He insisted that many of the factors entering into the disorder, such as infections, metabolic disturbances, toxic processes, physical constitution, and the life history of the person, must be considered in determining our understanding of the condition as it exists in any particular person. The depressive reaction type, he held, was essentially a withdrawal by the patient from an overwhelming environmental or personal situation which he could not handle. The withdrawal took the form of depression because of the particular constitutional make-up of that person. Excitement or mania he thought of as a violent rebellion of the patient in response to definite life difficulties and this outbreak was determined by the previous personality of the particular person. Analysis of the thought content of the patient during the more acute stages of the disorder indicated that the basis of the excitement or the depression was formed by the previous habits of the individual and by his reactions to a certain life situation in which he found himself.

The psychoanalytic explanations [6] of these disorders have mainly been

directed toward the understanding of depression or melancholia, although a few studies have been made of the manic phase. In general, the analysts have held that the depression represents an assimilation (introjection) by the person of the hostility which he formerly felt toward some lost love. This hostility was previously neutralized by affection which was mixed with the hostility, but following the loss the individual turns the entire hostility back on himself. Hence, he hates himself both for his previous hate and love and for his inability to make up for the love which he has lost. In normal grief there is a conflict between love and hatred which is at least partially recognized; but in melancholia this recognition is lost. In essence the mechanism of the depression would be expressed as, "I cannot love because I hate. Hating, I am hated. Being hated I am depressed and so hate back."

The analytic formulation of the manic phase is not so specific, but in general, the behavior is related to hunger and satiety, to punishment and retaliation. In childhood we found that punishment serves to wipe out the consequences of our sins and so all religions and societies have institutions and rituals for easing both the individual and social conscience. In the manic phase there is a release of instinctive drives toward retribution in which normal inhibition by conscience (Superego) disappears. The manic allows himself every possible form of psychological retaliation—abusive language, excessive love-making, screaming, obscenities. He is driven by a vague sense of impending doom since his conscience is not completely lost. In mania the patient retaliates directly; while in depression, being overwhelmed by his conscience, the only retaliative satisfaction he gets comes from the discomfort which his suffering causes others.

It is evident that there is no essential unity between the various schools of thought with respect to the basic psychological nature of manic-depressive psychosis. Kraepelin emphasized constitutional predisposition; Meyer emphasized life situations and habit patterns; while the psychoanalysts emphasized the interplay between love and hate, retaliation and retribution.

Anatomy, neurology, and physiology

The extremes of agitated excitement and dejected depression shown by these patients are among the most profound deviations of both feeling and behavior which are exhibited by any type of psychotic or neurotic patient. Since they are so extreme one might think that they should be accompanied by marked changes in the biological functioning of the individual, which could be determined by the methods of anatomy, physiology, or biochemistry. It may be that the disorder is psychological in origin, or it may

be that it is physiological; but in either event, one would expect that such marked psychological changes would be accompanied by gross and easily detectable physiological alterations.

The general assumption underlying much of the biological investigation of manic-depressive patients is that there must be a physiological difference between mania and depression since the mood difference is so great. When the literature is surveyed,[5, 17] it may be summarized as follows: (*a*) There is no correlation between the rate at which oxygen is consumed in the body (metabolism) and mood. (*b*) Blood pressure is not related to mood; variability in a given person may bear some relation but the lability does not correlate with the lability in mood. (*c*) Blood sugar level and sugar tolerance curves were not at all correlated with the direction of the mood. (*d*) The blood chemistry studies show mainly negative results. There is a tendency for increased blood calcium in mania while blood cholesterol fails to be correlated with the direction of the disorder in mood. (*e*) Significant differences in the rate of salivary secretion [20] by the parotid gland were found in that manic secretion rates did not differ from normal while there was a very low rate of secretion in depression. (The depressed patient often complains of a dry mouth.) (*f*) It may be that the variability in mood is related to a defective homeostasis, meaning that the physiological control of the interrelationship between the various organ systems of the body is defective and that the physiological defect is somehow related to the psychological defect.

The agitation which some of these patients show suggests that there might be some gross disturbance in the glands of internal secretion, particularly the thyroid gland. However, no one of the studies which have been directed at the detection of thyroid dysfunction in this psychotic condition has produced results which were outside the range of normal variability. Since the psychosis occurs more frequently in women than in men, and since it is frequently associated in onset with the menstrual cycle, the possibility that it might be associated with disturbances in the gonadal secretions of the ovaries has been studied. Again, no significant results have been obtained.

Baird [1] found that blood taken from manic patients and injected into either cats or rats from whom the adrenal glands had been removed markedly extended the life of the animal. In several instances the animals were unusually voracious and strong after such injections. He believed that this indicated a higher level of cortin (one of the hormones secreted by the adrenal glands) in the blood of the manic patient.

Lewis [15] made an autopsy study of eight cases in which the symptoms

during life had indicated that the disorder was a clear-cut manic-depressive psychosis. He stated that very few anomalies could be found. There was some evidence of an enlargement of the heart and vascular system, some evidence of previous hemorrhage into the thyroid gland, and, in general, a possible increase in the size of the various glands of internal secretion. He believed that in these particular individuals the circulatory and endocrine systems had reacted in a compensatory way in excess of that usually found in those dying at about the same age as these particular patients.

It is generally thought, at present, that the lack of positive findings of physiological disturbance in this condition is due, either to (*a*) the fact that very few patients have been studied over a long period of time to relate the tests satisfactorily to the psychological alterations; or to (*b*) the present lack of any suitable indicator or measure for the physiological changes which may take place. This second point is credible if one considers the analogy of the manic-depressive psychosis to that of morphine addiction. There is in both states a very marked disorder of behavior and of psychological experience. No one has yet been able to demonstrate just what the physiological effects of morphine addiction are. Usually, this lack of positive information is said to be related to our ignorance of proper tests.

Psychology

We mentioned above that there is a relationship between the cycloid personality and the manic-depressive psychosis. Such a cycloid person has periods of time in his life during which he feels elated, full of energy, possessed of many ideas, hopeful, and overactive. When in this condition, he actually is exceedingly productive and accomplishes much. Many such accomplishments would be impossible for the ordinary person because the average man lacks the necessary energy and spirited motivation. At other times, the cycloid individual will have periods of mild depression or "the blues." It just does not seem worth while to expend the energy to accomplish anything. Life appears futile and there is no particular point in working hard. In some persons these mood swings are always in one direction, either elation or depression; while in others there is an alternation. Psychologically, these changes may be regarded as a kind of defense against the problems of everyday life. When things worry us we often become restless, pace up and down, are unable to sit still, or try to keep busy so that we do not have to think. At other times we simply sit with our head hung down and our hands folded, refusing to take part in anything that is going on around us, so defending ourselves by the simple means of shutting out the world.

In spite of the difficulties encountered in getting information about prepsychotic personalities, it has been possible to secure relatively adequate characterizations of groups of patients in which the diagnosis was not a matter of doubt. When these investigations were carried on with both dementia praecox (Chapter 10) and manic-depressive patients, they failed to show that the prepsychotic personality was uniformly associated with the type of disease which the individual developed.[3] Generally speaking, it was shown that about half of dementia praecox patients had a prepsychotic schizoid personality, and that but one third of manic-depressive patients were cycloid personalities. Stated in a different way, the information which is obtainable from friends and relatives indicates that the distinctive psychotic symptoms occur as often as not in personalities or temperaments which were called "normal" before the onset of the disease.

On the basis of a careful descriptive study of the prepsychotic personality of the melancholic depressive and the manic patient, Good [7] provided certain clues as to why these investigations of prepsychotic personality are so unsatisfactory. His evidence rested on two points: (*a*) There is more than just a subtle difference between normal cycloid personality and manic-depressive personality; there is a marked difference. (*b*) Personality characterizations given by untrained observers are not apt or accurate.

Good pointed out that before illness the true melancholic shows an oppressive conscience (Superego) and a tendency to self-punishment which permits him to endure the tortures of his own conscience. He shows an extreme devotion to routine duties which he often specially chooses because of their self-restrictions and self-impositions. Self-denial, self-sacrifice, and an ability to endure difficult circumstances without complaining, are traits which are often exploited by selfish and unfeeling people about him. This is particularly marked in that he has this tendency to take on to himself the blame and guilt feelings for mistakes and omissions of others. This guilt feeling is quite characteristic and often reaches such a degree that looking at a "No smoking" or "Keep off the grass" sign is attended by feelings of guilt, and fear of certain detection and punishment. Being ready, generous, and unostentatious in his help of the underdog, the sick, the suffering, and the weak, he is quick with pleas and excuses for the failings and shortcomings of others who often literally and metaphorically pick his pocket. When he is afflicted with physical illness, he bears it with calmness and fortitude. Boasting is alien to his nature; indeed he has a marked tendency to depreciate his own worth which, when judged objectively, is often high. His quiet, unobtrusive manner is simple and severe. In social groups which he thoroughly enjoys he will so blend with the background that he may appear

insipid, dull, tongue-tied, or shy. Yet when one gets to know him he is, in a quiet way, very entertaining. He hesitates at the expression of opinion and avoids dogmatic statements. He is scrupulously honest and unable to tell a lie in a convincing manner. However, in spite of this deceptive appearance of a person without backbone, when he believes himself to be morally right, he will hold on with bulldog tenacity.

When psychotic depression overtakes such a person some of the personality characteristics are qualitatively the same; others are changed. Psychotic depression or melancholia has the distinguishing feature of a profoundly painful dejection with a rejection of interest in the outside world, loss of the capacity to love, inhibition of all activity, and a lowering of the feelings of self-regard so that he is occupied with ideas of self-reproach and self-revilement which lead him to a delusional expectation of certain damnation. He so loses contact with reality that he is incapable of the introspection necessary to make complaints. If he can be induced to speak spontaneously (which he seldom does), he complains of such things as having sinned, of being damned eternally and beyond the hope of salvation. Any attempt to distract the melancholic's thoughts into pleasant channels more in keeping with actual fact is frustrated by his persistence in his self-reproaches. These self-reproaches are usually uttered in a low monotonous, and almost inaudible voice, while his features remain statuesque and immobile. Tears are infrequent but he hates and despises himself for his delusional wrong-doings. So intensely does he reproach himself that he may tell a questioner that there is no point to be gained in speaking to one who is so damned, that it is better to leave him alone and avoid the risk of contamination.

So overwhelming is the melancholic's hatred of himself that the possibility of suicide is always present. The attempt, when made, is characterized by its ruthlessness and determination. If the attempt be unsuccessful, it is unsuccessful purely by accident and not by design.

The superficial appearance of the melancholic's contact with reality, the tidy, neatly arranged clothes, the clean skin, and even the occurrence of his misery in a setting of unclouded consciousness is deceptive. For although questions may elicit evidence that he is correctly oriented and realizes that he is a patient, nevertheless when inquiry is made after recovery from the attack it will be found that the illness occurred in a fantasy setting or that the circumstances of the illness may be in whole or part blotted out by an amnesia. He may say that he thought while ill that the doctor was a detective masquerading as a doctor in order to discover the nature of the sins and crimes which he had committed.

The prepsychotic personality of the manic is one with a tolerant Super-

ego. Such a person will make risque jokes in mixed company: he will easily employ oaths which are commonly regarded as vulgar, or obscene. He has a light hearted facility of paying outspoken, extravagant, and flattering compliments to the opposite sex with whom he often shows a readiness to indulge in amorous escapades. The ruthlessness and cruelty he often displays without any accompanying guilt feelings, allow him to toss aside or to crush anything interfering between him and any objective he is bent on achieving. His unerring and unhesitating skill at lying carries great conviction when he finds it necessary to resort to that expedient. His thirst for company, in which he seeks the spotlight and feels thoroughly at home, provides an outlet for his breezy garrulousness and his cheery, unwarranted optimism. When he is so inclined he has a great capacity for sustained and constructive effort. As a rule his efforts are lacking in originality, but he is able to seize and profit from passing opportunities. His matter-of-factness contrasts markedly with the dreaminess and capacity for abstract thought and self-analysis of the schizoid character. He oscillates between hard shrewdness and an incredible childlike gullibility. Although he may have a superficial sympathy for unfortunates, he is incapable of appreciating that most people may not or should not necessarily feel and think as he does; he is clever in sizing up others, but cannot discern how others feel about him. When physically ill he is self-centered, demanding, and full of self-pity.

The behavior of the manic during a psychotic episode is in part an exaggeration and in part qualitatively different from the prepsychotic personality. One sees a very excited, distractible, overactive, overconfident, and continuously talkative person with whom rapport is usually good. There may be little or nothing in his behavior that is incongruous with the display of exaggerated and uninhibited elation. The patient is restless, busy, and impatient; he feels little or no fatigue in spite of the extreme and continual activity. He may sing loudly and gayly, shout himself hoarse, prance about, do callisthenics, destroy things or injure other persons in a spirit of anger or as a demonstration of strength and domination. Some manic patients become especially arrogant and abusive to those in authority or to those who are responsible for curbing them. The elated mood may shift easily to irritability, anger, and furious resentment if interference or restraint is arbitrarily introduced. The rapid flow of talk is typically peppered with clipped sentences, puns, rhymes and plays on words; there is a constant quick shifting from topic to topic without, however, unintelligible gaps in continuity. Personal comments, vulgar and obscene talk and gestures are common. Many patients engage in a good deal of writing, drawing, painting, or decorating and these productions are not as a rule too bizarre. Think-

ing disorders in the manic attack stem partly from the general overactivity and from elation and self-assertion. In addition to the rapid shifting of topics and ideas, the distractibility may be accompanied by fanciful, grandiose delusions of achievement, power, and possessions.

This formulation of the problem of the relationship between prepsychotic personality and the behavior and mental changes seen during the illness is illuminating. However, it leaves us with the problem of understanding the relationship in the patient who shows alternations or mixtures of manic and depressed attacks, for the prepsychotic personalities just described are practically mutually exclusive of each other. We must conclude that the manic-depressive psychosis is not predictable on the basis of any test, measurement, or description now available.

In view of these general findings, we may return to the original hypothesis of Kraepelin, that this disorder may be toxic in nature and that the reactions shown during the psychosis may be a result of this unknown and unspecified toxin. It should be remembered that no biochemical evidence exists indicating the presence of any true toxic agent. It may be possible that some toxin causes the radical psychological alterations which we can accurately describe even though we do not really understand them. Why such a hypothetical toxin may cause mania or depression in the same individual is as difficult to understand as is the fact that the prepsychotic temperament of the hypomanic person is so different from that of the melancholic and yet both may swing back and forth between mania and depression during the illness.

Summary

Manic-depressive psychosis, which is relatively common among the mental disorders, is one in which the manifest symptoms are more clear cut and seemingly understandable than are those of almost any other of the mental disorders. We can, without much difficulty, imagine ourselves behaving like, or feeling like, the manic-depressive patient. In spite of the commonness of the disorder, and in spite of our ability to identify ourselves psychologically with such patients, the true nature of this disorder is far from being understood. It is really a major puzzle why, in a state of disorder of behavior and experience so profound as this, physiological or psychological research investigations have made so little positive progress. There are, to be sure, numerous theories and explanations which have been put forward to account for either the physiology or the psychology. It must be

emphasized that all of them are, strictly speaking, hypotheses or guesses which may lead to future scientific verification.

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Chapter 10 *Dementia Praecox: Schizophrenia*

DEMENTIA PRAECOX IS THE MOST DISABLING OF ALL VARIETIES OF mental illness; it lasts longer, has fewer recoveries, and is the most difficult for the patient, his relatives, and his friends to understand. It does not seem to be directly related to occurrences in the patient's life. In many cases it has a slow, insidious onset. It is most prevalent in the age group 20–35 years. It complicates the picture of many of the so-called senseless crimes. It is undoubtedly one of the greatest medical and psychological problems of our day.

The basic cause and the rational treatment for dementia praecox or schizophrenia (the two terms are used interchangeably) are unknown. There are experts who hold that it is an organic disease; other authorities who say it is but a way of reacting, the inevitable development of unhealthy habits of thought; others who say it is but a name for a group of symptoms which may be due to a variety of causes; and those who say it is a group of diseases with certain symptoms in common. In any event, there is in many mental patients a syndrome which runs a fairly predictable course and is marked by psychological and personality changes in which obvious elements of similarity may be seen. Dealing with this symptom-complex and its subvarieties as though it were a single disease (which assumption may or may not be true) provides a way of presenting the facts in a simple fashion.

Case histories

This disease most commonly shows itself in any of several common groupings of symptoms, which are called hebephrenic, catatonic, paranoid, simple, and pseudoneurotic. Any two or more of these may occur at the

same time or successively in the same person. Such combinations are called dementia praecox, *mixed*. The following history is illustrative of the most common variety, namely *hebephrenia* or hebephrenic dementia praecox:



Fig. 6. Facial expression of a hebephrenic dementia praecox patient.

CASE 12: At the age of twenty-one Mr. H. was admitted to Psychiatric Institute because he had attempted suicide, refused to eat for fear that the food was poisoned, imagined that his sister was dead (and blamed himself for it), and feared that people were going to kill him. These acute symptoms had existed for ten days prior to admission, but for three years he had been suspicious of people around him, particularly his schoolmates, and felt that they were "ganged up against him."

He had been a good student until the last two years of high school. His teachers always liked him but he made no close friendships with his schoolmates. Sometimes, when his mother or father berated him for not looking for a job, he

became very irritable and sullen and refused to speak to them for several days. He was inconsiderate of their feelings and his mother complained that he seemed to have no affection for his father or herself. On one occasion his sister, in the course of an argument, said to him, "You're cockeyed." He became extremely excited and annoyed, declaring there was nothing wrong with his eyes. He then stood in front of a mirror for a long time staring at himself. He complained that the neighbors kept their shades up so they could watch him, and finally made a scene with one of them about it. His family pointed out to him that the neighbors had always left their shades up at night but he could not be shaken from the belief that they were spying on him. Outbursts of anger at trivial happenings in the home became more frequent. One morning he slashed one wrist and threatened to shoot himself. The family doctor advised that he be taken to a mental hospital for observation.

At the time of admission he was cheerful and happy and smiled without any particular reason. He said that everything would be all right, that he would sleep, that everyone would sleep, and that everyone needed a lot of fresh air. In an exalted mood he would walk up and down the ward. In a few days his mood changed and he became somewhat depressed, suspicious, and hopeless. He said that he felt guilty and thought that he should die, but there was very little apparent emotion associated with this statement: "Everybody is sick because of me. I am to blame for everything." He was frequently preoccupied with the thought that he was part male and part female both mentally and physically. He hugged and kissed himself and murmured words of endearment to himself, stating that the male part of him was making love to the female part. He would often sit quietly, grinning and smirking with occasional outbursts of laughter.

Later he became more and more talkative and carried on a rapid stream of conversation whenever he could get an audience. He offered solutions for all world problems and was anxious to act as mediator between the nations. He delighted in complicated forms of expression and wrote essays for the doctor on such topics as "The Internity of Our Dimensionality," "Physical and Thought Strength—Technocracy's Mistake," and "Relativity, Life Cycles, the Comprehensive Cycle."

He had a rapid-fire manner of conversation and would produce in a quick, matter-of-fact voice such statements as, "Tell me, darling nurse, why do I have such a passion for basins? Please put me in one," or, "Go away, I am in conference with God." He moved the furniture from the walls to insulate it from the cosmic forces in the walls. While playing checkers he explained that he was amplifying existence by giving a personality to each of the pieces and moving them as puppets in the drama of life.

The patient was under observation for six years, during which time there were many shifts and changes in the particular symptoms shown. In the earlier phase he thought that certain individuals and the United States government were after him; and believed he was affected by cosmic forces. Throughout this

time there was a gradual loss in mental control and a deterioration in personal and social habits. He became more preoccupied and irritable when interfered with. His verbal productions became more rapid, incoherent, and filled with made-up words (neologisms). He ate pieces of dirt that he found on his shoe and was untidy in his personal habits.



Fig. 7. Rigid catatonic stupor.

Among the symptoms mentioned one should note the infantile behavior, the deterioration and seeming regression, the shallow emotional responses, the senseless and illogical thought processes, the evidence of homosexual thoughts, the delusions, and the hallucinations. These are all symptomatic of hebephrenia.

Another variety of dementia praecox is *catatonia*. The following history is illustrative of this psychosis:

CASE **13:** Mr. C, a laborer, aged twenty-seven, had led a normal uneventful life. He had no special abilities or talents and left school at the age of sixteen. He was always very friendly among men but shy with women. He was cheerful, considerate, and affectionate toward his parents. He participated in sports, such as baseball and basketball. His work habits were steady and he had never been discharged from a job. Three weeks prior to admission to the mental hospital he became insomnious, seclusive, unusually untidy, and very irritable toward his brother and sister.

The first abnormal behavior occurred when he was at a bar. A man he had known all his life came over to him and offered to buy him a drink. He turned to the man and replied vehemently, "Every time any one of you buys me a beer you go out and talk about it. You always talk behind my back, but you won't come out in the open and fight like a man." He became very excited and assaultive. His friends finally succeeded in getting him home where he stood at the window shouting and spitting at people in the street because he thought they were trying to "get" him.

When he was brought to the hospital he gave either monosyllabic responses or none at all. His face bore a blank, staring expression, his gait was slow, and he was incontinent. In the next few days he became oblivious to his environment and completely mute. He was observed standing against the wall with his arms raised above his head, and on one occasion stood with one arm bent over his head with his index finger extended as if pointing. Since he refused to eat, tube feeding was necessary. At times he became extremely resistive and assaultive to the nurses on the ward. He showed these severe symptoms for nearly five weeks and then became somewhat more cooperative. He no longer had to be tube fed and would eat from a spoon or at times feed himself. His extreme apathy changed to fearfulness and he appeared to be afraid of everything and everyone about him. After a year of hospitalization he rarely answered questions and was still disoriented. There came to be days during which he would enter into activities with the other patients and help with the ward routines. His limited conversation showed that he sometimes had auditory hallucinations. Occasionally there was impulsive, assaultive behavior.

His social adjustment and personal habits gradually improved. He was alert and cooperative and, in general, friendly. He wanted to go home and felt that he was well enough to start looking for a job. He said at the time that he had no fears or strange thoughts and that he felt "natural-like." He was paroled from the hospital but after ten months at home he had to be readmitted to the hospital due to the recurrence of the previous symptoms.

It will be noted that the major psychological differences between the catatonic patient and the hebephrenic are the inaccessibility, the muscular stiffness, and the general negativism shown in catatonia. The catatonic patient may have periods of excitement which are comparable to the excited phase of manic-depressive psychosis. The motor symptoms are of especial importance in the catatonic syndrome.

The third variety of this disorder is *simple* dementia praecox, which is illustrated by the following case:

CASE 14: Miss S, aged twenty-seven, has had three periods of residence in mental hospitals since the age of nineteen. She was a slow but not unusual student in common school and in the first two years of high school. Until she

was seventeen she showed no evidence of mental abnormality and had many friends. During the second and third years in high school she became apathetic and complained of loss of energy, vague pains, and occasionally said that things seemed unreal to her. Her parents noticed a slow but pronounced change in her character and she seemed to lose all interest in things which she had formerly enjoyed. There was no evidence of delusions or hallucinations.

Because of her apathy and slovenliness, she was finally brought to a mental hospital, where she became even more disinterested and apathetic. She appeared to be mentally deteriorated, so that after six months her behavior and conversation were similar to that of a feeble-minded person. Her family took her home from the hospital on two different occasions, hoping that home surroundings would stimulate her and make her more normal in behavior. At home she continued in the same deteriorated fashion. Her lack of attention to her person and her untidiness interfered with the family life to such an extent that she had to be returned to the hospital on each occasion. At age twenty-seven she behaved like a stupid girl of six or seven, giving no evidence of any of the intellectual ability which had enabled her to reach high school.

These simple dementia praecox cases are marked by their apparent and long-lasting deterioration and scarcity of acute psychotic symptoms. Their indifference, their lack of judgment and foresight make them seem feeble-minded rather than psychotic. In general, they are rather inadequate persons who seem to "run down" and rarely, if ever, regain interest in normal life.

The fourth subvariety is *paranoid* dementia praecox. The following case is illustrative of the more outstanding symptoms:

CASE **15:** Mrs. E. aged twenty-six, was admitted to the Psychiatric Institute because she had an acute episode of screaming while at work. She had been a clerk in a department store. One day a customer asked to be shown a gray dress, size eighteen. Mrs. E. began screaming that nuns and priests were after her and were attempting to seize her and kill her. She was sent home and during the following week she remained in such a state of terror that it was impossible for her mother to take care of her. On admission to the hospital she said, "I am afraid of gray dresses. I went to Catholic school and the gray nuns have frightened me. I have been separated from my husband for a year and divorced six months. I am afraid of cats, shoe-laces, cars, and black shoes, and I am afraid of pink tissues. I think of the white dress that my sister wore when she died."

Mrs. E. had been married against the advice of her family. She did not get along well with her husband and was divorced after a year's time. She said her illness really began about a year and a half before admission to the hospital and just before the divorce. She began to feel that her husband's behavior and attitude toward her was directed by Dr. Johnson who some years before had been her family physician, but who had not been seen by Mrs. E. for three years,

since he had moved to another city. She often asked her husband whether the doctor had told him to make her do various things. After divorce she became negligent, disinterested, did not bother to dress during the day and played the piano or read most of the time. Her mother made her go to work in the department store.

The patient explained that she felt that Dr. Johnson somehow influenced various persons to plague her with gray dresses and mice in order to frighten her so that she could be used as an experiment for medical science. While in the hospital she was usually energetic, euphoric, attentive, and cooperative although her mood was changeable. At times she was distractible, irrelevant, and illogical. She said that everything which had to do with her was planned by Dr. Johnson who was making her the center of a great medical experiment to cure humanity by giving her various diseases and experimenting upon her by telepathy. She believed that her thoughts could be read and influenced by remote psychoanalysis and by radio.

An example of her conversation is as follows: "I think there is a little play going on around here. I try to think of names of people I know and pay more attention to names I hear over the telephone. Like when I thought of my harp teacher. His name was Mr. Philip. When I was there, there was a Mr. Philip here too. I began to feel I was not so useful. I thought of singing in church. I think that my singing was controlled by Dr. Johnson who reminded me of a person I used to know. [Do you feel that these people are controlling you?] Yes, in a way. I'd like to be Dr. Johnson, because I'd like him to be my guardian angel and I'd like to live with him some day. When I went to the dental clinic I know that Dr. Johnson put ideas in the dentist's mind as to how I should behave so that I could help convert him to be a Christian. I think that the pains in my body must be due to hypnosis or to suggestions which come over the radio."

She failed to respond to either shock therapy or psychotherapy and has shown some mental deterioration during the five years succeeding hospitalization.

The major difficulty of the paranoid dementia praecox patient revolves around his delusions in belief, thought, and action. These delusions are usually somewhat fantastic, not well organized, and are only partially incorporated into the thoughts and life of the patient. The delusions grow out of disorders in thinking and hallucinations from which the patient suffers. The delusions are in part constituted by rationalizations by which these patients explain their bizarre experiences to themselves.

During recent years there has been a growing recognition of an additional subvariety of schizophrenia. These patients have been termed "larval" schizophrenia, "preclinical" or "early" schizophrenia and more recently "pseudoneurotic" schizophrenia.* As the terms indicate, this form occurs

* P. Hoch and P. Polatin, "Pseudoneurotic Forms of Schizophrenia," *Psychiat. Quart.*, 1949, *23*, 248–276.

as an early stage of the illness and seems somewhat similar to neurosis. The following case is illustrative:

CASE 16: Mr. P. was a thirty-five-year old, single, very intelligent man who came voluntarily to the mental hospital with the following complaints: marked tension, stammering and gritting of teeth, chronic digestive trouble, insomnia, and inability to carry on his work as a research scientist. He had been treated by a variety of psychotherapeutic approaches and had been unsuccessfully psychoanalyzed.

He said his difficulties began about ten years previously when he was teaching in high school. He had become fatigued, tense, and had had chronic indigestion. He could not maintain discipline in his class and was very preoccupied with himself. One of his superiors told him that unless he learned to sell himself and made better contact with people he would never get promoted. A year or so later he believed that a superior was trying to appropriate some of his work and he became quite suspicious of him. The fatigue became more marked and then he began to have "hissing" spells in which he would clench his hands and teeth and make hissing noises. The patient consulted several psychiatrists who told him that he had a neurosis. He entered a private hospital where a diagnosis of obsessive-compulsive neurosis was made. After hospital discharge he was under the care of a psychoanalyst for two years.

On admission to Psychiatric Institute the patient was energetic and tense. He was neat, well dressed and sociable with other patients, displaying, however, no emotional sympathy with their problems. He was relevant and coherent; polite, cheerful, pleasant; at times elated and talkative. He often laughed loudly and occasionally inappropriately. He had ideas that he was better than anyone else morally, socially, and intellectually. He had frequent sadistic fantasies of beating men and women or of committing wholesale murders. Basically he was shy, seclusive, and anxious about everything around him. He was easily fatigued; had complaints resembling stomach ulcer, and high blood pressure.

Mr. P. was given electric shock therapy which changed him suddenly. He expressed weird grimaces, maniacal laughter, strutted about the room mumbling to himself, crying out loudly, and at the same time apologizing for his conduct. Then he began to make hissing sounds, clenching and unclenching his fists, as if in rage. Some days later after the shock therapy was terminated the patient became himself again and was polite if spoken to. However, he said that he would like to smash the whole hospital. He denied hallucinations but thought that people around him were out to get him. He said that sometimes his thoughts were "As if I were hearing them out loud." Again he said that, "I have the feeling that I might be under observation." In spite of intensive psychotherapy and electric shock therapy his mental condition became slowly worse. At his request a brain operation (psychosurgery) was performed. This relieved the immediate complaints somewhat. He was less tense and hostile and was instead lazy and devoid of ambition. He was able to leave the hospital, accepting a

routine job. It was thought that his condition was an arrested schizophrenia which probably would become worse rather than better.

The emotional life of the pseudoneurotic schizophrenic is the same as that shown by other varieties of dementia praecox patients, namely, cold and rigid with explosive episodes of hostility and aggression. The true neurotic likes to describe, analyze, and "enjoy" his complaints. The pseudoneurotic gives a rather stilted, sterile, vague description of his symptoms which account he repeats in a stereotyped fashion time after time without particular evidence of any insight into the basic difficulties involved. These patients frequently display psychotic episodes. They vary between being cold and apathetic and being very preoccupied and excitable about all sexual matters. Many of these pseudoneurotic patients develop into a full-blown schizophrenic psychosis. Others manage to maintain their borderline status throughout a lifetime with now and then a "mental" episode.

From the study of many cases of all varieties of dementia praecox, the earliest changes have been described as seclusiveness, feelings of being talked about or watched, fears of violence, complaints of bodily pains, and odd behavior. After the illness has developed, the following symptoms are more or less common to all forms of dementia praecox: disorganization of thought so that the normal processes of association are distorted; disorders of feeling and emotion with displays of apathy, excitement or silliness; hallucinations, especially of hearing, sight, and touch; poor judgment; impulsive, irritable behavior; negativism or uncooperativeness; delusions; and an apparent mental deterioration. Not all of these symptoms occur in every case, but it is quite usual for any case to have many of these symptoms at one time or another.

Personal experience

The case histories and the lists of symptoms describe the ways in which dementia praecox patients appear to anyone who comes into contact with them. The personal experiences which the patients themselves have are not too well understood because they do not understand their own mental life or behavior. The descriptions which they give of their inner life are difficult to comprehend because of the number of vague metaphors, analogies, and symbols, so that they sound unreal. Often such a patient will say that there are no words to describe the way he feels, so he makes up words (neologisms).

One patient described the onset and part of the experience during a schizophrenic episode as follows:

"You must know how the whole thing started; how I made a sort of bet with God. I was at a Socialist meeting one night. A man there spoke of Jesus and of his giving his life for others. He asked if there were not many others who would be willing to do that.

"That night I was thinking about what the Socialist speaker said and that I would gladly give my life for my family alone. In the night I was waked up and a voice said, 'You must be put to the test to see if you will really give up your life.' It seemed as though God were right in front of me and the voice seemed to be God's voice, and words from the Bible came into my head. I began to feel very nervous. It seemed as though something was getting into me. I did not tell my wife. I felt she would not understand. I got up and ran out into the street in my underwear. Of course that was a very strange thing to do, but it was just like the old Greek who found out how to weigh a ship. He was in his bathtub at the time the idea came to him, but he got so excited that he got up and ran out without anything on. You get an idea so big it just carries you away.

"I think it was the same night that blood came into my mouth, and something said it took almost two thousand years to produce a man like me. I had lived for two thousand years. It was just like I had gone through many generations. Sometimes I was born rich and sometimes I was born poor.

"About a week after that I was sent to the hospital. After that dream I was nervous. I had a feeling like when they bind up your arm and give you a blood test. I was sort of filled up. It was a queer feeling—something you don't understand what it is. I had the feeling that there were two sides and that I had to go to one side or the other in order to get salvation. In the hospital I was put into a strait jacket. The first night I had a dream. I seemed to be crucified, and the whole room was full of devils. They were trying to hurt me, but I was full of power. You see I was in a delirium. I dreamed I was dead. I dreamed I was lying in the grave just like Jesus did.

"In about three days my mind came back, and I was released at the end of three weeks. I got along very well after that. I had steady work and there was nothing to worry about. During the last three years work has been scarce and there has been plenty of time to think. No, I had not been thinking much about religion. My wife was told at the hospital that the trouble came from reading the Bible; so I put the Bible in the attic. And I didn't want to make her nervous. And I didn't go to church. The last attack began when something told me to go and get the Bible. I had started then to pray to God. I had been feeling lonesome and I had it in my mind that there is a God. Then it came to me that I had a second installment to pay. I had to finish paying my bet with God. I came then into a state of fear. Something said to me, 'Are you willing to commit suicide?' And it was just like I had to do it. I turned on the gas. That was for my wife. Then I slashed my wrists, one for one daughter and the other for the other daughter. But everything I have done before came to a good end, and I have the feeling that this will too. I just felt that I had to do it to keep my promise. I

have the feeling now that I am a new man. All this is over. I have done my part.

"No, I didn't hear anything. It's just like when you sit and think. Something comes to you. Sometimes it comes quick just like something talks to you. I suppose it comes from God. I can't see any other explanation. Yes, I did say when this came on it was just like I was hypnotized myself. When I talk with a doctor, I talk about self-hypnotizing. A doctor can understand that. He don't understand about religion.

"Did I think of myself as Christ? Yes, I guess I did. That was before I understood. You get happy and you wake up and think you are it. You get puzzled as to who you are. . . . When this thing came on, I thought I was going to have to preach; but the voice said, 'You was going right the way you was. I don't need you to preach. I have other men I can send to do that.' " *

As this account described, the first unusual experiences which many of these patients have are the peculiar feelings, hallucinations, difficulty in thinking, and delusional ideas. The hallucinations are to them identical with normal sensation and perception. The only way the patient can differentiate hallucination from normal perception is through clues in the surrounding situation, such as obvious incompatibility with reality, appearance and disappearance of the perception without normal cause, and the like. Hallucinations occur without antecedents and without any connection with the conscious content of the moment. For example,[17, 18] the first hallucinatory voice that one well-educated patient heard claimed to be God, and since he was a skeptic rather than a religious man, the voice did not fit in with his mental trends. Later, as these experiences continued, they would appear and disappear without reference to what was going on around him, or what he happened to be thinking about. On numerous occasions he tried to produce hallucinations voluntarily and was never able to do so. Neither could he voluntarily change the nature or course of an hallucination as it was progressing. From his inability to induce or control the appearance of hallucinations, he concluded that they were not the product of the activity of his conscious self and that attempts to explain them in this way were wrong. The hallucinations appeared to him as fully organized and complex experience, not as a vague amorphous quality or quantity which gradually took structure. At times he noticed that the hallucination was so substantial that it blocked out the real external stimulation. This patient referred to the experience as a partial anesthesia for actual external stimulation, since external stimulation was blocked out when it competed with the hallucinations. For example, an hallucinated figure of a woman was completely opaque in that she seemed

* From A. T. Boisen, "Onset in Acute Schizophrenia." *Psychiatry,* 1947, *10,* 160–161.

to block out part of the doorway in which she was standing, and her voice blocked out the actual words spoken at the same time by a real person.

Another typically schizophrenic symptom that this patient described was the auditory hallucination of hearing his thoughts clearly spoken out loud. At times they appeared to be his own thoughts which he heard, and again the voice said that it was that of God or of some person. He had the feeling of being objectively separated from this voice. This patient experienced thoughts-out-loud as much as 90 per cent of his waking time. According to his report, the voice sometimes expressed his own thoughts, and sometimes thoughts which were foreign to him. In either case, the voice seemed to come from a point in external space, slightly above his ear. During these thoughts-out-loud he was able occasionally to recognize a certain amount of tonus in his vocal muscles and a sensation which he called "proprioceptive pressure." The pressure, which was in the back of the head, might be either static or vibratory.

The subjective account of hallucinatory experiences indicates that they are not initiated or controllable by the conscious self, that they appear spontaneously and do not grow out of phantasy or other conscious trends, and that they are identical in kind with normal conscious sensation and perception.

Another outstanding symptom in the schizophrenic is *loss of affect,* emotional flattening, or emotional deterioration. Judging from the subjective account given by such patients, this loss of affectivity is more apparent than real. One patient [19] believed that there was some loss in feeling tone, but that the more important change was in the direction of the feelings. Instead of attachment to persons and events in the immediate environment, he was more concerned with ideas, and about these he often had intense emotional reactions. Ideas had much more value and importance to him than did external events. In his own case he was able to notice the gradual, progressive shift in the direction of interest toward ideas and away from people and things. He believed that the dominant psychological change brought about by his psychosis was the overemphasis on ideological aspects of his mental organization at the expense of interest in the environment and its effect on him. With this overemphasis went an increased affectivity concerning ideas and a decrease concerning the other aspects of experience.

Still another aspect of schizophrenic affectivity that is frequently mentioned is its apparent inappropriateness.[13] The patient cries or laughs without known cause, or shows emotion which is inappropriate to the situation. Specifically, the patient sits and laughs and giggles to himself; when told that his wife has just died, he makes no greater show of concern than if he had

been told that it was raining. It has been suggested that these responses which are apparently inappropriate would be understandable and coherent if we only knew and appreciated what was going on in the patient's mind. This belief is supported by occasional instances in which the patients report later what they had been thinking and feeling, but even when these reports are made, they are somewhat incongruous. It has been suggested, also, that the emotional responses are appropriate to the unusual feelings or to the hallucinations which may be going on at the time.

The account of the schizophrenic patient previously mentioned [19] gives interesting information about such reactions. He experienced vivid affective states, such as exaltation, pleasure, or sadness which occurred spontaneously. He could not attribute them to any particular environmental occurrence, or even to his mental trends immediately previous to the emotion. He said that the time relationship between the hallucination and the affect was as follows: during an indifferent affective state, a pleasant affective state would spontaneously occur without any known stimulus, either actual or hallucinatory, to initiate it. Immediately following, a thought-out-loud would occur to which the pleasant affect was appropriate. The amount of time lapsing between the affect and the hallucination was never more than a matter of seconds. The important point here is that the affective state was never delayed until after the hallucination. This patient thought that his experiences were evidence that both the hallucination and the affect were organized and brought about by some factor other than the conscious self. Whatever the interpretation, the evidence does indicate that the relation of the affect or emotion to the hallucination is not on the same basis as the relation of the affect to external stimuli under normal conditions. That the affect is appropriate to the ideation may be true, but the normal connection of cause and effect in emotional response does not seem to obtain here.

The schizophrenic patient has sex urges and feelings but they are often distorted in experience and expression. The homosexual and heterosexual urges are diverted and experienced in phantasy, expressed symbolically, or made overt in autoerotism. The patient has little conscious understanding of all this and is overwhelmed by fear and panic since he cannot be sure which experience is reality and which is fantasy.

Another subjective phenomenon very frequently reported by schizophrenics is the feeling of unreality or depersonalization. They say that they see or feel themselves reacting as if they were inwardly divided and that one part can watch the other part. Ordinary events in the world seem to be happening at a great distance away from them and seem to have an unreal quality. The process of interpreting and verifying perceptual experience is

termed *reality testing*. This testing is distorted in schizophrenia and such distortions give rise to anxiety.

Bleuler [3] reported that one intelligent patient described his thought process in the following way:

"In my mind there ran like an endless clockwork, a compulsive, torturing, uninterrupted chain of ideas. Naturally, they were not too clearly defined or too significantly developed. Idea joined upon idea in the most remarkable and bizarre series of associations, although there was always a certain definite or inherent connection from link to link. There was sufficient coherence or system to the whole so that I could always differentiate the light and shadowy side of things, people, actions or spoken words which struck my interest. What ideas, what images have not tumbled around in my head. What amusing association of ideas have occurred. I always seemed to come back again and again to certain ideas, to certain images and thoughts which, however, now I can hardly remember, for example, France's divine right; Barbera; Rohan. They did seem to build an equal and significant series of stops in that racing train of thought; and I spoke them aloud rapidly like catchwords, or a kind of mental short-hand which were substituted for the instantly vanishing ideas as far as I was able to keep up with them, and as fast as they occurred to my restless thoughts." *

The peculiar feelings, the voices, the altered way in which emotions are experienced, the peculiar sex feelings, the disturbing thoughts, all of these bewilder, confuse, and overwhelm the patient. He tries to explain this disturbing, disordered experience to himself, but his usual clarity of thought is lost in the confusion. The explanations which he reaches are fragmentary and have a dreamlike quality. And like the forgetting of the dream or the correcting explanations which go with normal awakening, so there is a disappearance or lack of insight on the part of some recovered patients for their false beliefs during their illness. Other improved patients often maintain that there may have been some truth in their previous delusions. Some recovered patients have said that they do not believe that any arguments, no matter how logical, could have shaken them from the beliefs they previously held. The delusions are in such instances a kind of a defense mechanism against their own doubts and the skepticism of others.

Facts and figures [16]

In the entire United States in 1946 there were about 250,000 patients resident in hospitals who were suffering from dementia praecox. (It may be estimated on the basis of mental health surveys and Selective Service figures

* From E. Bleuler, *Dementia Praecox*. Leipzig, Deuticke, 1911, 26.

that at least half again as many are suffering from this disease but are not in hospitals.) During 1946 there were 29,753 schizophrenic patients admitted to hospitals for the first time. They constitute over 45 per cent of the total resident mental hospital population and over 20 per cent of the first-admissions. Of every 100,000 of the general population of the United States aged between 25 and 69 years about 250 are schizophrenic and resident in a state mental hospital. Of every 1000 children born alive, 16 will spend some part of their lives in a state mental hospital suffering from this disease. The average age at first-admission for men is 32 years; for women, 34 years.

Dementia praecox has been found to occur in all races of mankind and in every country. Analysis of the rates of first-admission to mental hospitals in America indicates that during the past forty years there has been a slight increase.[21] This increase is not associated with war or economic depression. Among those admitted to state mental hospitals, there are 15 per cent more men than women, but there are little or no differences between urban and rural populations, or among racial and religious groups.

Out of every 100 schizophrenic patients under treatment during any given year, from 5 to 30 leave the hospital in an improved condition. This wide variation in rate of recovery is a function of the kind of patients treated, nature of treatment and the wide difference in opinion and definition of the terms "improved" or "recovered." In one follow-up study of 100 cases it was found that 46 were still in the hospital after 10 years and 38 at the end of 15 years. The average number of years spent in the hospital (New York State hospitals, 1947) by those who died in the hospital was 21 years.

While many dementia praecox patients are of an asthenic constitution, this is not uniformly true.[2] Special studies of the personality and temperament which were said to have characterized the schizophrenic patient before hospitalization indicated that 53 per cent were shy or seclusive (schizoid), while 27 per cent were normal; in other words, there is a tendency for the psychotic state to appear as an exaggeration of the prepsychotic, but this tendency is far from universal.[6]

The results of investigations of heredity [12] in this disease must be oriented to the fact that it occurs in about 0.85 * per cent of the general population. When the family history of patients suffering from this disease is investigated, 10 per cent of such patients are found to have one parent who was also schizophrenic. (If both parents were schizophrenic about 66 per cent of offspring have been found to be schizophrenic.) About 14 per cent of the

* The estimate of 0.85 per cent is based on survey studies made in Germany. The 16 per 1000 expectancy, 1.6 per cent, is based on the first-admissions to New York State hospitals. The first estimate is probably a minimum figure and the second is somewhere near a maximum estimate.

brothers and sisters, 16 per cent of the children, 4.3 per cent of grandchildren, and about 4 per cent of other relatives of dementia praecox patients also have definite histories of schizophrenia. In studies of twins it has been shown that, when one of a pair of identical twins is schizophrenic, in 67 per cent of the cases their cotwins will also have an identical form of schizophrenia, 15 per cent will have schizophrenia of a differing variety, and 18 per cent will be free of any psychosis. In fraternal twins, about 13 per cent of the cotwins will have schizophrenic cotwins. Investigations of geneticists have established the fact that whenever cotwins or other blood-relatives of schizophrenic patients are found to be psychotic, a schizophrenic type of psychosis will almost always be found, indicating a specific type of heredity.

History of the concept of dementia praecox

In 1860 Morel, a French psychiatrist, used the term *démence précoce* to describe the mental condition of a boy aged fourteen who was showing marked mental deterioration and loss of memory. He emphasized the very early onset of mental deterioration. Kraepelin [15] in 1896 took over this term, *dementia praecox,* as a name for a group of symptoms which he thought were basically characteristic of a single disease. Originally, he held that the essential symptoms were the onset of mental abnormality in adolescence or early adulthood, a progression toward a state of dementia, and certain personality traits, such as shyness, irritability, and capriciousness noticeable in early childhood and becoming exaggerated with the onset of the disease. He observed that 26 per cent of all dementia praecox patients improved, while 8 per cent of hebephrenics and 13 per cent of catatonics recovered. The majority of dementia praecox cases showed a progressive dementia which was not altered by any of the therapeutic procedures available at the time he wrote. The essential characteristic of this disease, according to Kraepelin, depended upon a weakening and loss of the usual intimate connections in the mental life between emotional, volitional, and intellectual reactions. Kraepelin revised and modified the details of this concept during the thirty years following his original formulation. He always held that this condition was really a single disease of a biological nature with a large element of hereditary determination. The basis of the disease he considered to be due to some disturbance in metabolism or in the physiological chemistry of the body. His formulation was so well put together that no one has subsequently been able to do more than shift the emphasis with respect to the importance of certain details.

Bleuler [3, 4] modified the concept more than anyone else. He objected to the name *dementia praecox* in that the illness does not necessarily begin in puberty and does not always terminate in dementia. He coined the name *schizophrenia,* meaning "splitting of mental life" which he regarded as the main characteristic of the disorder. He also held that schizophrenia was not necessarily a single disease, but more probably a group of symptoms of varying origin. In agreement with Kraepelin he held that the essential characteristics of the schizophrenic patient are specific disorders in thought and emotion, together with a disordered relation to the external world. The thought disorder, he believed, consisted in a loss of coherence in the normal associations between ideas. The stream of thought was only partially guided by one or another central idea, such as the normal person would use in his thinking. Because of this, words of similar sound, alliteration, generalizations, nonsense words, and the like enter into their thought process making it illogical, odd, and incomprehensible. The affective disorders he believed to be particularly marked by a flattening of emotion or by the attachment of feeling to unusual thoughts or ideas. (In this way disordered affect is also a form of defective association.) The sudden senseless outbursts of excitement, anger, or irritation resulted from the lack of cohesion or harmony in both intellectual and emotional integration. Of these patients' difficulty in their relation with the external world, he said, "One feels emotionally more in touch with an idiot who does not utter a word than with a schizophrenic who can still converse intellectually, but who is inwardly unapproachable." [3] He held that schizophrenic thought was not dependent upon psychic influences, but solely upon the seriousness of the basic organic pathological process which was probably toxic in nature.

Like Bleuler, Adolf Meyer [20] took issue with Kraepelin on certain points concerning the dementia praecox concept. He held that in those patients where deterioration was not the outstanding disturbance, the diagnosis should be "allied to dementia praecox," implying that there was probably not one single disease process. Kraepelin had been impressed with the generally unfavorable course of this disease, pointing out the low recovery rate. Meyer emphasized, on the other hand, the assets and possibilities which a patient might have which lead to his recovery. So far as he was concerned, the symptoms themselves were only incidental and the central point of interest was the patient's elasticity which governed the chances of his recovery or of his progressive dementia. Instead of dementia praecox, Meyer preferred to call this condition "parergasia," meaning a false integration of performance and behavior. He also held that on the basis of all of the physi-

ological, anatomical, and biochemical investigations, there was no real evidence indicating that this disease was biologically determined. Rather, he pointed out that comprehensive clinical and psychological studies showed that the essential deterioration and disorder could be traced back to very early deviations from normal personality development. These initially small disorders gradually developed into the more and more complete psychopathology which constitutes the final actual psychosis. He held that the study of the prepsychotic life of such patients revealed an astonishing frequency of peculiarities in the personality make-up long before any psychopathology manifested itself. Of the deteriorated patients, those few who did subsequently recover showed from the very beginning of their disorder essential differences from those who failed to recover. Observations of this sort led Meyer to conclude that, instead of blaming heredity, toxins, metabolism, or biology, it was sounder to consider the responsible factors in terms of untimely evocation of instincts and longings and ensuing habit-conflicts.

Various writers [8, 11] who have been influenced by the psychoanalytic formulations of psychopathology have developed still a different notion concerning the essential nature of dementia praecox. In general, they hold that in schizophrenia there is an extensive mental regression, so that the patient retreats to modes of thinking and modes of behavior typical of the very earliest years of any person's life. They point both to the fact that some catatonic patients adopt the same posture which the foetus has before birth, and also to the lip and mouth movements of sucking which are quite similar to those shown by the nursing infant. The dreamlike quality of the thought and mental associations is said to come from the predominant importance of basic instincts which have no relationship to logic as we know it in adult life. What has been termed a splitting between emotion and intellect in the mental life is interpreted in psychoanalytic psychology as a return to an early level where emotion and intellect have not yet been differentiated. The illness may develop out of adolescent conflicts, conflicts in adult life, demands made by life which are beyond the individual's ability, or from traumatic experience. The schizophrenic patient is unable to adjust (or chooses a faulty means of adjustment) to the demands of personal and social responsibilities of adult life, so turning back to an infantile level of behavior and thought in order that he may avoid difficulties in adjustment. Most psychoanalysts say that many schizophrenics have particularly strong, unconscious homosexual wishes and desires which they cannot overcome or outgrow, and so retreat to an infantile state as a form of adjustment which they can tolerate.

Chemistry, physiology, and anatomy [1, 10]

Due both to the fact that this syndrome is fairly well defined in many patients, and to the fact that Kraepelin and Bleuler both had believed in the organic basis for the condition, there has been since 1896 a large amount of work done in the fields of physiology, anatomy, and chemistry of the schizophrenic patient. The work on physiological chemistry has been extended to all types of metabolic relationships that might be disordered in these persons. Attempts have been made to relate various metabolic variations to the psychological state of the patient. The subvarieties of catatonia and hebephrenia have been studied and compared to see whether there were any metabolic differences. A great variety of studies of protein and carbohydrate metabolism, liver function, oxygen and CO_2 metabolism have failed to establish any essential relationship between these functions and schizophrenia.

The hypothesis that the cause of the condition might be some toxic substance produced by the body has received a great deal of attention.[14] Studies of the blood, and, indeed, of all of the fluids and most of the tissues of the body have been made, in the hope that such a toxin could be identified. So far, no distinctly positive results have been found. Other investigators, thinking that some disorder in the functions of the glands of internal secretion might be the basis of the symptoms, have made elaborate surveys of thyroid function, pituitary function, gonad function, and functions of other ductless glands. Again, the results have been disappointing.

Anatomists and neurologists have made searching and far-reaching investigations of the structural organization and the functional efficiency of both the central and autonomic nervous systems in schizophrenic patients. There is evidence of a deficiency in certain of the processes controlled by the nervous system; but just how this is related to the disease still lacks specific identification. One group of physiologists and psychologists have pointed out that the term *withdrawal* could be applied to both the psychological and physiological changes. Withdrawal is expressed psychologically in a lack of interest, apathy, and indifference; physiologically, it is expressed in a general hyporeactivity, a diminution of organic bodily responsiveness to various stimuli. This physiological withdrawal has been found to mark most schizophrenic patients, but the real meaning of the lack of physiological responsiveness is still unknown.

Many investigators have studied the electrical brain wave records (EEG) of schizophrenic patients. In general it has been shown that there is a significantly greater percentage of abnormal EEG records in schizophrenics

than in normal subjects, with a greater percentage in the catatonic and hebephrenic groups than in others. However, there is nothing consistent in the character of the schizophrenic EEG records nor are the abnormalities in the records regularly related to any psychological or physical phase of the illness. Similar studies of the electrical changes of the skin (psychogalvanic reflex; PGR) produced the same inconsistent results. One study [9] did indicate a fairly high association between recovery from this illness and the disappearance of abnormal PGR responses.

Psychology

All sorts of psychological studies have been made of the mental functions, as well as of the development and the disorders in the total personality of the schizophrenic patient. Just as is the case with organic, physical methods of investigation, there is no psychological test or group of tests on which one can make a clear and indisputable diagnosis of dementia praecox. By the use of standard intelligence tests attempts have been made to derive patterns of test scores or combinations of scores which would provide a *schizophrenic index*. Although of interest, these patterns and indices fail to be of much practical use, nor do they tell us much that is new about the psychology of the patient. The disorder shows itself in such a complicated way that the test procedures are no more than confirmatory of the general impression which such a person makes when interviewed. Even a detailed case history which is descriptive of the individual can only point out certain symptoms and general relationships which are common to all dementia praecox patients. These patterns of symptoms are based on alterations of thinking, feeling, and responding to the external world. The schizophrenic appears to withdraw from reality into what seems like a dream world of his own creation. Whether such a patient really creates a dream world (intentionally and purposefully), or whether he finds himself in one is debatable. The degree of withdrawal from reality varies from a preference for solitary pastimes and activities to a condition where the individual sits on a bench day after day, mute, unresponsive, and resistive to all people and events about him. Such patients seem unable to cope with ordinary reality in an adequate way; and their needs, dreams, and wishes seem satisfied by their fantasy world. They seen unable to distinguish between real and unreal, logical and illogical, fact and dream. They have lost insight.

Insight has been defined as a peculiar characteristic of consciousness, which attaches to a belief that is based on adequate evidence; in other words, it is self-understanding.[7] In this particular sense, insight refers to the aware-

ness of psychological changes and to the ability of making a self-judgment as to whether these phenomena (hallucinations, feelings) are natural or morbid. In the mind of the psychotic patient such phenomena are sometimes believed to be the result of demoniacal possession, religious influence, or supernatural effects. The patient contemplates his experience with a disordered mind in which intellect and emotion are uncertain and the mental processes further complicated by hallucinations. In certain patients statements which superficially indicate insight are of particular interest. Far from being insightful, the remarks are the result of severe disturbances in emotion or hallucination, so that the patient will remark, "I must be crazy," or "I ought to be in an asylum," only to conceal from others the experience which he is having and concerning which he has no real insight. Because of the splitting or uncertain linkage between psychological functions and the deficit of efficiency in many mental functions, the delusions are of a fantastic, changeable nature, quite refractory to reason or logic and not verifiable by insight.

Many of the schizophrenic disorders in thought can be studied and understood by recording portions of the conversation of such patients.[22] It has been found that the schizophrenic uses superficially conventional language to express vague emotional states, in place of the common ideas usually expressed in the same way by a normal person. He condenses many complex ideas and many different associations into a single word or a short phrase. He uses metaphors or words which he himself makes up and which have purely personal meanings, without making any effort to make them meaningful to the listener. The more deteriorated patients tend to condense whole sentences into one word or a phrase, the personal meaning of which is unprecise and changeable.

Another outstanding characteristic of the schizophrenic is the display of odd, distorted behavior. The forms of this behavior are too various to be summarized in any specific way. Such a patient may walk around tapping furniture with a mysterious air; he may collect meaningless scraps of paper and finger them continually; he may tie a bit of cloth to his ear or a bandage around his head; he may assume and maintain awkward postures. To the casual observer these performances are peculiar, purposeless, and insane. The patient himself may give either an illogical, incoherent explanation for such behavior, or give no explanation at all. His habits of personal cleanliness frequently deteriorate. Such behavior and deterioration have been called "regression" in that the pattern is similar in form to reactions which occur in the early years of life. The psychoanalyst believes that this regression is a real psychological return to an emotional and intellectual infantilism.

Whether it is a real turning back or whether it is a disorganization which includes many infantile and childish elements is impossible to decide on the basis of present evidence.

From the standpoint of the psychologist the outstanding characteristics of the schizophrenic patient are the weakening and shattering of mental life (particularly in its intellectual, voluntary, and emotional aspects); the apparent arrest in personality development; the anxiety and fear; the hallucinations and delusions.

Attention should be drawn to the possible relationship between the so-called schizoid personality and the schizophrenic psychosis. There are otherwise normal, healthy people who are of schizoid personality. They are more or less shy, uncommunicative, given to fantasy, show few external interests, and are not interested in participating in social pleasures. They frequently employ autistic thinking. This type of personality is qualitatively similar to the exaggerated reactions seen in the schizophrenic patient. To some extent the student of human nature can gain knowledge concerning the personality reactions of the schizoid through the study of the more marked deviations shown by the schizophrenic patient. However, a note of caution must be sounded; namely, that the similarity is often more apparent than real. So far, no standardized psychological test or procedure has indicated any fundamental similarity or necessary connection between the schizoid personality and schizophrenia.

Summary

It is strange that a condition which disables thousands of persons every year, which is responsible for the holding in mental hospitals of many other thousands, is still so incompletely understood. Whether it is one disease, a group of diseases, a system of bad habits, or only a group of psychological symptoms is debatable. The weight of the evidence from all fields of research indicates that the simplest way of thinking about this problem is to view it as a "nuclear" condition—a disease—which is complicated by a number of other disorders which may be spoken of as "allied to dementia praecox." The nuclear condition is genetically determined, in that a small fraction of the population is born with the potentiality of developing dementia praecox while the rest of humanity does not have this potentiality. Those having the possibility or potentiality do not inevitably develop the disease. They may develop it when proper provoking circumstances are present. Among such circumstances which may bring out dementia praecox in those so disposed are malnutrition, pregnancy and childbirth, exhausting physical disease, pro-

longed physical fatigue, and prolonged emotional stress. However, these circumstances are effective only when the potentiality is present; that is, their action alone is not sufficient to cause dementia praecox. There are also certain other mental disorders having somewhat similar symptoms which in all probability have basic causes other than nuclear dementia praecox. These are the conditions called "allied to dementia praecox."

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 11 *Involutional Melancholia and Paranoia*

CLINICAL IMPRESSION, MENTAL SYMPTOMS AND THE CHANGES IN PERsonality and behavior furnish the basis for distinguishing between most of the functional psychoses. In spite of much study and investigation there is no reliable way in which to make a certain physical or psychological differentiation between many dementia praecox and manic-depressive cases. Many other mentally disturbed patients have psychological symptoms similar to one or the other of these major psychoses but who do not fit clearly into either category. It is uncertain whether or not these variants are simply unclear psychological manifestations of a major psychosis, or whether they are really different disorders both physically and psychologically. Any number of attempts have been made to classify adequately the patients who do not fit into these or other fairly well-established diagnostic groups. In spite of all of these attempts, there is no essential agreement among the various authorities. Certain of these subvarieties of mental abnormality are worth consideration. Although no one of them comprises a large proportion of the total number of mental cases, these variations, when added together, amount to about a fifth of the total number of patients admitted to the mental hospitals.

Involutional melancholia

This disorder is a type of depression which is differentiated from other melancholic episodes on the basis of the fact that it commonly occurs in persons between the ages of forty-five and sixty who have had no history of previous mental illness. It is marked by an increase in motor activity which ranges from restlessness to frenzied agitation. Psychologically speaking, the depression is just as acute as it is in any of the other varieties of depression,

but in place of the motor retardation there is usually a marked motor agitation. Case 17 is illustrative.

CASE 17: Mrs. I, age fifty-three, had a sudden onset of very noisy behavior and incoherent speech. She wailed that she had many illnesses, that she was eternally damned, that she had ruined both her children, and that her bowels were stopped up and would never move again. The noisy behavior and confusion continued for several weeks. She was obsessed with the idea that she was a bad woman, that the world would never forgive her. She seemed particularly afraid that cattle would attack her. She listened to all the health lectures on the radio and finally insisted that she had tuberculosis and refused to allow anyone to touch her. There was constant talk about ruining her children's lives, that it was all her fault, that she would never be forgiven, and that she should kill herself. After a suicide attempt, the family physician insisted on hospitalization.

On admission to the hospital she was extremely restless, agitated, and markedly depressed. She kept wringing her hands and pacing the floor, emitting whining cries. She talked spontaneously in an agitated, apprehensive fashion, repeating the same thing over and over again. There was no intellectual deterioration or memory defect. She seemed well oriented and alert to her surroundings. Her rather monotonous monologue ran as follows: "There's nothing the matter with me; I'm all right. I'm only afraid of what will happen to Mary. Mary is all alone, she's my daughter. I must go out and take care of her, she's my child. Oh God, why must this happen, my bowels. I haven't moved my bowels for months. I take in food, but it sticks here. I have no opening at all. I have no bowels. I have no heart. I'm nothing. My poor Mary. What are you doing with Mary? You are keeping her in the cellar. You are going to torture me."

During the next five months there was little change in her condition. Frequently, her agitation was so great that she had to be kept in cold packs or continuous baths. She did not respond to psychotherapy. Electric convulsive therapy was initiated and after ten treatments her agitation and depression subsided. She became cooperative for the first time and made a gradual recovery. She was finally discharged from the hospital and, although not completely in command of herself, both she and her husband felt that she would be able to get along at home. During the course of six months she made a complete recovery and has not been mentally ill since.

This case illustrates several points which are peculiar to the disease. The agitation and restlessness, the deep depression, somatic delusions, and suicidal tendencies are characteristic and dramatic. Most patients have delusions relating to death, poverty, and religion. This agitated depression is in a sense superimposed on the normal personality so that it is sometimes difficult to understand what the individual was like before the onset of the illness. In these involutional cases, the observer gains the impression that the fundamental personality is not greatly changed or disturbed, but that it is

carrying a load of depression and agitation; which load is only partially synthesized into the normal character of the individual.

Facts and figures

There are between 20,000 and 25,000 cases of involutional melancholia resident in the mental hospitals of the entire United States. In 1946 there were 6,888 such patients admitted for the first time. Before the extensive use of shock therapy about 20 per 100 of these patients under treatment were discharged as improved during any one year. When electric convulsive therapy is employed, recovery occurs in about 80 per cent of those in which depression is the leading symptom and in about 40 per cent where paranoid symptoms are most prominent.[10] The average age at first-admission to the hospitals is 55 years for men and 52 for women. The ratio of men to women among first-admissions is 0.45 to 1; the ratio of urban to rural patients is 1.9 to 1.

The rate of admission of these patients to the mental hospitals of New York State increased between 1911 and 1943 from 4 to 14 per 100,000 of the general population of the state aged over 35.[20] The onset of the disease is commonly associated with physical illness, loss of employment, or family difficulties.

Brockhausen [2] studied the genetic history of 201 melancholic patients, finding that those cases which occurred during the involutional period showed clear evidence of having more than the expected number of relatives who had had the same illness. Patients whose psychosis did not occur during the involutional period did not have this "hereditary tainting."

History and explanations of the involutional melancholia concept

Involutional melancholia was first distinguished as a separate group by Kraepelin, who found that he had among his patients many cases of depression which occurred rather late in life and which were not clearly manic-depressive, depressed, paranoid dementia praecox, or senile. He termed these cases melancholia, pointing out that this particular kind of depression, occurring at the age of involution, is marked by anxiety, a feeling of unreality, and hypochondriacal or nihilistic delusions.

The absence of a satisfactory biological explanation of this type of mental disorder has led to psychological speculation concerning its dynamics. These interpretations are mainly descriptive, but they provide ways of thinking about this variety of abnormal psychology.

Psychoanalytic explanation

Many years ago, Freud[6] analyzed the psychological course of melancholia. His formulation, together with the amplifications of his followers, may be stated in simplified form as follows. In melancholia there is an injury to one's self-esteem; loss of job, illness and slow recovery; children no longer ask for guidance. The injury is so severe that all adult ambition and sexual interest are given up. With the loss of ambition and interest, there is a tendency to regress toward childish impulses and a display of infantile characteristics. The self (Ego) permits the conscience (Superego) to torture it because of the regressive tendencies. This becomes a real mental splitting so that the patient is unable to understand why his conscience is so tyrannical and torturing. Some patients will cry out, asking why they allow themselves to suffer as they do, and in the next breath will ask why they cried out.

This mental torture (psychic sadism) is transferred to various parts of the body. The patient suffers with peculiar intensity from imaginary ailments. On occasion, the torturing conscience forces the self to deny that the body exists, so that there are feelings of unreality and of depersonalization. In another sense the Ego bribes the conscience with suffering in order that it may not be tortured by ideas and reproaches which are more painful than the imaginary physical pain. This interplay of self-reproach and self-defense constitutes the basis of the agitated depression and hypochondriacal delusions which are so overwhelming that self-control and insight are lost.

Psychobiological explanation

Every person who reaches the age of sixty has lived through injuries to his self-esteem; he has realized his declining mental and physical strength; and has experienced something of the loss of meaningfulness of life. Only a very few develop involutional melancholia. Just what kinds of persons succumb to this sort of psychopathology? Several investigations of the pre-psychotic personality of melancholic patients have been made. These show that there are three major types of persons who may become melancholic at this time of life, (*a*) the rigid perfectionist; (*b*) those who were usually of a depressed or pessimistic temperament; and (*c*) those who seem to have been normal, well adjusted persons.

Muncie[19] holds that the rigidity of personality is compounded in no fixed proportion of many factors, such as obstinacy, aggressiveness, pride, sensitiveness, and a rigid code of personal ethics. This explanation would

imply that the disease is an exaggeration of habit tendencies and patterns built up during a lifetime, which are affected by the many physiological changes of the involutional period. The rigid personality cannot alter to meet these changes; it breaks and the broken state constitutes the psychosis as we see it.

The inquiry into the personality of the involutional patient whose symptoms are in line with his previous character shows that he was an inhibited person inclined to be serious, sensitive, frugal, lacking in humor, stubborn, reticent, of rigid moral code, and with a tendency toward depressive apprehension and worry. His adult existence was narrow and devoid of interests or diversions, and his behavior was often that of a worrisome, fidgety, fretful, or overanxious person. Such characteristics are said to grow out of the deeply rooted, lifelong feeling of insecurity. By the time the involutional period is reached, adjustment to new situations or frustrating circumstances is no longer possible. In a woman, the realization that her most highly valued biological function, that of childbearing, is now definitely lost may give her a feeling that her entire life has been a failure. In other individuals, the psychosis seems to be an exaggeration of the ordinary characteristics of the involutional period of life of normal individuals. In the woman these symptoms are nervousness, excitability, fatigability, depression, insomnia, failing memory, and vague, indefinite pains. In the man the usual symptoms are emotional instability with sudden, uncontrollable shifts in mood, sullen anxiety, a tendency to break into tears, an inability to concentrate, general apathy, and vague bodily complaints. In either sex, when such symptoms become acute and are complicated by fears, the psychotic state seems but an exaggeration of the normal reactions.

When this psychosis occurs in persons who were said to be ordinarily happy and well adjusted several explanations are possible; the series of events preceding the break may have been really overwhelming; the account given that the patient was always happy may be erroneous in that the reporter did not know the patient well, or the patient was clever in covering up his emotions. Or, involutional melancholia may be an organic or physical process such as an imbalance in endocrine gland secretions which produces the symptoms in this specific fashion.

Psychology [16]

The mental symptoms which present themselves prominently and consistently in melancholia can be grouped as follows: First, the patient's in-

terest which formerly was directed toward his family, business, and social life is withdrawn and turned in on himself. He is concerned only with the insecurity of his own life, the afflictions of his body, or the unhealthy state of his soul. Second, this introversion is correlated with the rapid development of various ideas that are exaggerated or utterly false. He believes that he is about to die by disease or violence, that his property is gone, that the world is strangely altered, that his soul is lost, and that he is doomed to everlasting torment. Third, the mental processes suffer radical alteration, in that he entertains thoughts which are obviously absurd; he misinterprets the intentions of those about him and, in general, substitutes uncritical imagination for rational judgment. Finally, his conduct alters; he abandons his former social adaptation and becomes surly, ungrateful, resentful, irritable, and brutal. These are not mere uncontrolled impulses but reflect a change of character, because when the unkindly act is completed there is no reaction of remorse nor a desire for forgiveness.

In order to understand these psychological events, they must be considered in relation to the age of the individual who develops this psychosis; namely, the period between forty-five and sixty. The important motives of adult life, self-preservation, sex activities, and home or social functions, change at this age. Sex interest and potency wane. Social functions are no longer felt to be of real importance, so that the individual becomes more self-centered. This tendency to egotism is augmented by other factors. Generally speaking, we invest our emotional interests in social undertakings and home relationships that yield some return in emotional satisfaction, and if the return on the investment declines we become increasingly indifferent to it. The sixth decade of life is full of such declines. The man in his fifties finds himself physically and mentally incapable of accomplishing the amount (or quality) of work that was easy for him some years before. Similar changes occur in his family life. His children are grown up and independent, hence becoming less attached to him. He has to realize that he is no longer the man that he once was and that he must cast his ambitions in a form compatible with his decreasing abilities.

In addition, worries and anxieties concerning money or property become prominent. This concern is not solely because of the intrinsic or buying value of money; but rather, and to a greater degree, because the possession of money attracts respect and establishes prestige, so necessary to bolster up the felt insecurity. The reverse is also true; poverty entails social degradation or social extinction. In this way, loss of property means loss of the usual social life; hence, delusions of poverty are closely allied with fears of death.

Another expression of the death-fear is the feeling of unreality common

to all forms of depression. Things feel real to us in proportion to the amount of interest we take in them. They lose their meaning when we become indifferent to them. If our indifference is great, the whole world gets to be a shadowy, unreal place.

Due to egotism, the patient becomes not merely asocial; he is exclusively interested in himself and antisocial. The plainest evidence of this appears in his irritability and negativism. Such patients kick, scratch, and fight even when they are approached with the kindest intent. This positive interest in self is the basis for the hypochondriacal symptoms. When social and sex interests are intact, one can maintain the idea (true or false) of one's importance in the world. When this idea of importance in the world is gone, one's own body becomes a matter of supreme importance. One's interests are focused on the body. A decreased physical and mental energy is inevitable at this time of life. Coupled with this is the universal habit of exploiting physical disease as a means of gaining attention. These hypochondriacal symptoms may be due to misinterpretation of obscure visceral sensations set up by endocrine deficiency at this period of life, or they may rest on purely psychological motives.

Physiology and neurology

Various investigators have attempted to show how the physiological and neurological changes which take place at the involutional period are associated with the mental symptoms of involutional melancholia. So far, no one has found consistent evidence of any special neurological change which is specifically associated with the disease. Also, no one has produced any clear evidence that there is any outstanding physiological change in these patients which is not found in the "sane" person going through the involutional period without these psychological abnormalities. From this, one may conclude that whatever the relationship is which may exist between the biological changes occurring at this time of life and the involutional mental symptoms, it must be a very complex one which depends upon the interaction of several of the different glandular, metabolic, and neurological systems.

The treatment[7] of these patients with rather large doses of various hormones, which might be expected to replace those which are deficient at the involutional period, has brought about conflicting reports with respect to recovery from the mental abnormality. The administration[13] of large doses of vitamins, of haematoporphyrin, of benzedrine, and of other drugs has been tried. Some individuals have shown recovery following such treatment,

while other patients, who seemed to be in a similar physiological and psychological status, failed to improve.

The dramatic recoveries[10] of many patients with involutional melancholia, who have been treated with either electric convulsive therapy or by some form of psychosurgery (surgical severing of the nerve tracts connecting the frontal lobes and the midbrain), lead to speculation concerning the possible neurological mechanisms which may be involved. In some way the electric convulsive therapy or psychosurgery decreases the overwhelming press of psychotic fear and anxiety without changing the ordinary emotional reactions of the patient. After recovery from the immediate effects of the therapy, the patient will react as any ordinary individual to pain, fright, or anger, but is no longer tormented by fear of the unforgivable sin. It is not known just how this change in affective life is brought about, but much research is being conducted in the hope of clarifying the point.

Mixed psychotic states

There are many psychotic patients who at times show elation or depression similar to that shown in the manic-depressive psychosis; at other times they exhibit apathy, inaccessibility, or stupor similar to schizophrenia; or again, they have periods of agitated depression and suspicion. In other words, the outstanding symptoms change from time to time. In addition, there are many patients who seem to lack the particular combination of symptoms which would clearly identify them as suffering from any of the psychoses that have been described so far. Usually these patients have some of the symptoms of dementia praecox or manic-depressive psychosis, but they also have some one or two outstanding and atypical complaints which may indicate a variant psychopathological process or a clearly different disease. All these variations may be lumped together as mixed psychotic states. Certain ones occur with sufficient frequency to warrant brief description.

Benign stupor

On the basis of clinical studies made between 1902 and 1916, A. Hoch separated out a type of reaction which he named the *benign stupor*. Stuporous states are characteristic of catatonia and are frequent in hysteria. Hoch[9] held that the benign stupor is neither catatonic nor hysterical. It occurs usually after a period of mental depression which commonly has had a fairly adequate basis in fact, such as death in the family or loss of job. The

person becomes preoccupied, inaccessible, apathetic, and finally, stuporous. Such a person will lie in bed with a fixed gaze, mute and resistive to interference. After several weeks in this condition, he comes out of the stupor and slowly regains contact with his surroundings. His normal mental health usually returns, although he may be somewhat excited and ecstatic for a week or so. He has little or no memory of the period of the stupor.

Psychologically, these individuals show a simple and complete regression. They abandon their adjustment to everyday existence and give themselves over to complete indifference, inactivity, and apathy. The idea uppermost in their thought seems to be a wish to die and a notion that they are psychologically dead. When the normal individual fails to achieve his wants, he tends to become bored. The benign stupor is similar to any exaggerated boredom. After the patient, in fantasy, has been dead for a while, he then behaves as though he were reborn. His reactions on recovery are sometimes comparable to the ecstatic state marking the religious experience of conversion.

Hoch believed that these stupors did not result in mental deterioration. He considered them to be transient and probably allied to manic-depressive psychosis. Rachlin [21] followed up in 1933–1934 those patients that Hoch had described and whose careers could be traced. All but two had been readmitted to some mental hospital, usually as frank schizophrenia. Evidently the benign stupor is but an early manifestation of schizophrenia.

Perplexity states [16]

Some patients show a marked restlessness and aimlessness of behavior. They appear dazed, dreamy, and apprehensive. They may remark: "Have I done something?" "Do people want something?" "I have damaged the building, haven't I?" To questions, they reply: "I don't know." "I feel mixed up." "I can't get it together." "I can't remember anything." "I don't know whether I am myself or not." The behavior of such a patient is not a depressive blankness, but rather the bewilderment of one who cannot understand what he sees, hears, or does. They are painfully distressed and disoriented concerning their perplexed, anxious conditon.

In this state, the patient is unable to be certain whether the facts of the world about him are real, or whether his ideas, fancies, or dreams are real. Such an individual attempts to rationalize or make logical to himself the conflict between the ideas occurring in his fantasy and the facts of reality. The difficulty which he has in this process of rationalization leads to an overwhelming perplexity and the associated psychological distress.

Sensitive reference psychosis

This particular variety of abnormality was differentiated and described by Kretschmer.[15] It occurs in persons who are of a mild, weak disposition, but possessed of a certain amount of self-assured ambition and obstinacy. They have very intense emotional reactions but keep the outward expression of such reactions under strict control. They are very self-conscious and given to self-criticism, which is based on a scrupulous code of ethics. They are serious-minded with unobtrusive manners.

In persons of this sort, the reverberations of some painful emotional experience cannot be forgotten, and yet cannot be expressed. In consequence, the emotional memories force themselves into consciousness time after time. They are tormented by self-reproach and moral scruples. Internally, they are at battle, driven by a constant reproach for their own felt inferiority. Such a person has a feeling that his humiliation must be known to everyone, and that people in the street turn around and look at him as he passes, smiling and making deprecating signs. He detects reference to himself in harmless, everyday conversation, in newspaper articles, or in things he hears from the radio. In some instances, this reaction seems to be first organized around the moral scruples which the person may have concerning a secret habit of masturbation. Every failure in sex repression recreates the experience of a humiliating moral defeat. This gives rise to a combination of delusional ideas, general depression, nervousness, and imaginary or real physical ailments. The self-reproach and self-blame which mark the mental life of these individuals may be so strong that suicidal attempts result and hospitalization becomes necessary in order to protect them from themselves.

Paranoia

Kraepelin [14] used the word "paranoia" to describe a condition marked by chronic, systematized, gradually developing delusions arising from internal causes without accompanying hallucinations and without the tendency to mental deterioration, remission, or recovery. The essential psychological abnormality in paranoia is delusion (false belief). In normal persons, delusions may occur at any time due to imperfect observation, misinformation, or faulty reasoning. This defect in intellectual performance is usually accompanied by a certain amount of emotion or affect which may facilitate or inhibit the intellectual operation itself. We tend to judge or believe in accordance with our wishes, or emotions and past experience. If there is an undue amount of emotion in the judgment, prejudice results. There is no

clear distinction which can be drawn between these strong prejudices or so-called delusions, and delusions which are morbid or abnormal. For example, most of us maintain false beliefs as to our own importance and the esteem given us by our fellow men. We very easily distort the meaning of remarks and attitudes of others. We are apt to give significance to actions or remarks which had no reference to ourselves. When we are aware of some personal weakness or have some feeling of guilt, we are unduly sensitive and inclined to interpret the remarks of others as accusatory or deprecatory of ourselves. When we have accomplished some act of which we are proud and for which we grant ourselves self-approval, we tend to interpret neutral remarks and events as adding to this approval.

The line between true belief and false belief, between fact and delusion, is in theory extraordinarily difficult to establish. In actual practice and in most instances, the consensus of any social group serves as a sufficient reference for the truth or falsity of the beliefs expressed by any member of the group. In an absolute sense, the majority may be wrong and deluded, while the individual who is deviant may be correct. Undoubtedly, almost every person is possessed of delusions in this sense of the term; that is, it is rare to find any person whose every belief is in accord with the majority of his social group. When the false beliefs lead to acts which endanger the health and safety of the person himself or of the community, then the deluded person may be adjudged "insane" and hospitalized. The practical test is the endangering of self or others. In the hospital the diagnosis of paranoia will be given when there is clear evidence of fixed suspicions and ideas of persecution logically elaborated on the basis of false interpretations of actual occurrences. Some of the most difficult and controversial issues in abnormal psychology and legal psychiatry (forensic medicine) revolve about the point of the degree of danger which is attendant upon the delusional system of such individuals.

Case history

CASE **18:** Mrs. L. C. a native of Poland, age fifty-one, came to the United States when twenty-one. In spite of the fact that she never attended school, she boasted of her ability to act as a neighborhood interpreter because of her supposed ability to converse in seven languages: Yiddish, German, Polish, Russian, Lithuanian, Spanish and English. She freely admitted her inability to read or write in any language. In spite of this limitation she never hesitated to pose as her own lawyer. In reality, she exhibited a keen insight into her limitations, as for example when confronted with a psychological test including continuous

subtraction of seven's starting with 100, she did not hesitate to admit her ignorance or her lack of education. When a really difficult situation arose, she knew enough to force her family to hire a lawyer.

She was married twice. The first marriage which was said to have been happy was terminated by the death of her husband five years prior to her first contact with psychiatrists. She had succeeded in acquiring four low rent apartment buildings in a congested and semideteriorated section of the city. Two of these buildings had been acquired before her husband's death and two after. Her second marriage (four years before her first arrest) could be regarded as a real estate venture since she wanted to consolidate her real estate holdings with those of a man who had been a neighbor of hers for 30 years. He owned four parcels of real estate in the same community. His refusal to make her co-owner of his property led to their rift and finally to a divorce. Her malicious gossip about her second husband resulted in her first arrest at which time her sisters said her trouble was due to her overwork in attempting to function as maintenance man of her own properties.

This second marriage had gone on the rocks after one year. Despite the divorce she continued to visit her second husband, at the same time spreading the rumor that she divorced him because he was a "sissy" and had attempted perversions with her. Finally in desperation, the ex-husband had her arrested following which she was referred to a psychiatric clinic in January 1942. A diagnosis of paranoid state was made. Court and psychiatric supervision were recommended.

Nothing more was heard from her until her rearrest on the complaint of Mrs. F, a neighbor, in July 1943. Mrs. F inadvertently moved some bricks in an alley from her own building closer to Mrs. L. C.'s property. This seemed to act as a trigger which released Mrs. L. C.'s activities. For some time she persisted in digging out part of the foundation of Mrs. F.'s building. On several occasions Mrs. F. had to go to the expense of repairing the damage only to find the repairs undone. Finally Mrs. L. C. began to remark about Mrs. F.'s morals, accusing her of being intimate with Mexicans. When Mrs. F. was out walking her dog, Mrs. L. C. shouted to men around that Mrs. F. was having sexual connections with the animal. When Mrs. F.'s husband became incensed and remonstrated at these fantastic accusations she attempted to have a warrant sworn out for his arrest, saying he had made indecent advances to her. She caused trouble repeatedly by bringing the police, the fire department and the health department into the situation. She also involved a certain Mrs. S. and her mother, Mrs. H., who had visited in the home of Mrs. F. She boasted that she would hound both of them until they stopped visiting Mrs. F. Mrs. L. C. annoyed both adults and children. She spat at children because she believed they were paid to steal her coal. On one occasion the children did gang up on her and ducked her in her own ash can.

At the time of her third arrest on complaint of the neighbors and her

re-examination at the Clinic, the diagnosis of paranoid state was made but she was not found to be committable.

A fourth arrest and psychiatric clinic study took place in December 1943 with an entirely different set of complainants. At this time she was diagnosed as paranoia and was found to be legally insane. Even then she was not hospitalized but was placed in the custody of her sisters who appeared with the family lawyer to argue against her commitment to a State hospital.*

There is no way of actually evaluating the expense to the taxpayers through the activities of this one paranoid individual. The cost to the City and State for her many arrests and court appearances, the time wasted by many officials in investigations of her false accusations mount up appallingly. All of these are nothing when compared to the wear and tear and mental anguish she has caused many innocent persons, who found themselves crossing her path through sheer accident. In other paranoid individuals the mental processes and action may not be so apparent. This has been called "paranoid tendency" [3] and characterizes a general disposition to misjudge people, to become suspicious without adequate grounds, to feel that people are working against one when they are not really doing so. In this sense individuals with paranoid tendency are among the greatest dangers to world peace. The damage of an atomic bomb is minor when compared to the action of a paranoiac who has achieved a high level of political power.

Personal Experience

The story which the paranoid patient tells of himself does not differ greatly from that which is observed by others. The way in which these pathological ideas circulate in the mind of such a patient is illustrated by the following extracts from a letter written by a woman paranoid patient who was for many years in a German hospital:

"During the fourteen years that I have lived here, I have led the life of a martyr which mocks of all comparison. It concerns the embezzlement of inherited money, and on account of this all imaginable evil and cunning were exercised, that I might be passed off as insane and so on, or that I should be made so, and that the necessary means of living, credit and honor should be taken from me. This inexcusable behavior by day and by night is carried on by the secret police and their aiders and abettors, female and male, young or old, poor or rich—all must assist; since it is for the police! The hounding was ordered in all houses and districts of the town and no regard was had for an old

* This history condensed from A. J. Arieff, I. C. Sherman, and D. B. Rotman, "Neighborhood Quarrels," *Jour. Nerv. Ment. Dis.*, 1948, *107*, 62–70.

widow full of years. Since I came to Munich, all my letters have been kept back, opened, and delivered without a stamp. Letters about inheritance were simply suppressed, so that I never could be present at the distribution like the other heirs. Every effort is made that I may not be seen and that I should not come into contact with anyone; indeed it is horrible and incredible that such abominable occurrences can happen, carried out by certain lawyers, who have embezzled my money; of course they have also a certain police jurisdiction at hand, which facilitates for them their infernal ongoings in order that it should not come to light; besides they are rich, with which one can close the mouth of many a crime . . . When I arrived in Munich I found my house in the greatest disorder, although, before I left home, I left everything punctiliously in order. The furniture was covered with a layer of dirt and dust, the bed-clothes were thrown about anyhow, every drawer and cupboard was opened, although I had carefully locked up everything, closed the box of keys and taken it with me; in the kitchen the pretty mirror was in fragments. It went so far that I was forced to hesitate about eating anything, for after these rascally tricks people are capable of anything, whatever can be conceived horrible and mean." *

Facts and figures

In 1946 there were admitted to all mental hospitals in the United States a total of 1757 persons who were diagnosed as paranoia or paranoid conditions, constituting 1.2 per cent of all first-admissions. There are about 6,000 resident patients in the hospitals of the United States suffering from this condition. The ratio of hospitalized men to women patients is 0.6 to 1.0. As a group, these patients have a lower death rate in the hospitals than any other group of mental patients.[17] Most hospitalized paranoids are chronic patients in a healthy physical status who show only slight mental deterioration with the passage of years. Paranoid patients tend to have a better education and to come from a better socioeconomic group than do the other groups of patients. The average age for first-admission for paranoia is fifty-three years, which is exceeded only by involutional melancholia and the mental diseases of old age. Because of the relatively small number of paranoid cases admitted to mental hospitals, it is impossible to be sure whether the condition occurs more frequently in one or another national, religious, or racial group.

In one study [18] of a group of 400 mental hospital cases with prominent paranoid symptoms there was a remarkable amount of marital maladjustment found. Of the 268 married persons in the group, 139 had their

* E. Kraepelin, *Manic-Depressive Insanity and Paranoia.* Edinburgh, Livingstone, 1921, 227–228.

marriages end in divorce, separation, or annulment. In only 104 instances could the marriages be called reasonably stable. Of those not married, 35 were sexually promiscuous and 40 were abnormally shy with members of the opposite sex. Approximately one third of these patients were said to have shown the same character traits in early life which they exhibited in marked degree after being admitted to the hospital. The pedigree of 231 of the group was obtained and 58 individuals showed some familial taint, 44 were the direct descendants of persons who had suffered from nervous or mental disease (other than paranoia), and 8 had ancestors who were said to have been paranoid. These figures indicate that the role of heredity in paranoia is about the same as has been found in dementia praecox.

A majority of patients suffering from depressions and melancholia are benefited by shock therapy or psychosurgery. Paranoid dementia praecox, paranoid states and paranoia are in the majority of instances relatively refractory to both somatic therapy and to psychotherapy. Why this difference exists is not known.

History and nature of concept [19]

Heinroth in 1818 characterized paranoia as a disorder of intellect. In 1845 Griesinger used the term to cover the delusional states following attacks of either mania or melancholia; that is, he believed that the delusional formation was largely dependent upon emotional disturbance. Thus, there were two opposing opinions as to the nature of the paranoid state: one, that it was a disorder of intellect; and the other, that it had its origin in emotional disturbance. This controversy continued until Kraepelin in 1893 distinguished between paranoid dementia praecox and paranoia, as we now understand them. Paranoia, Kraepelin held, was a condition in which there was a growth of a delusional system which had a gradual onset, but which was marked by the permanence of the delusions and by most unfavorable prospects of recovery. He held that true paranoia developed from purely internal, but unknown causes. He further held that in paranoia there were no genuine hallucinations. He noted that paranoia and dementia praecox frequently had a common heredity. Irritable excitement and occasional rough and violent behavior appeared to be the most frequent prepsychotic characteristics. Some patients were said to have been distrustful, self-willed, to have had homosexual tendencies, and to have suffered from nocturnal enuresis.

Freud [5] and the psychoanalysts have held that paranoia is dependent upon homosexual fixation and the repression of homosexual tendencies. The

rejection of these tendencies constitutes the basis of the delusional symptoms of the disease. Paranoid delusions of persecution are said to grow out of a thought process which runs as follows: "I must not love him; hence I hate him." But this conflict is not possible, so the paranoiac projects the feeling of hate, saying, "He hates me, which justifies my hating him." This, in turn, becomes, "I do not love him; I hate him because he persecutes me." In the delusions of jealousy the process is said to develop as follows: A man may be disappointed by something his wife has done, and so he goes to a tavern to get drunk, knowing that at the tavern he will meet other men. Being with men is the unconscious motivation. The thought then becomes, not, "I love a man," but "She loves him." In consequence, he suspects his wife in relation to all men—men whom he himself had unconsciously sought to love. Another form of conflict underlying the megalomanic delusions is, "I love nothing and no one," which is equivalent to saying, "I love only myself." On this basis grow the delusions of grandeur which may be thought of as an overevaluation of one's own sexual importance.

It cannot be doubted that in some, but not all, cases of paranoia this conflict of ideas and wishes growing out of repressed homosexuality does play an important psychological role. However, a great number of histories of paranoid patients do not reveal any information which would indicate that a homosexual component is the kernel of the delusional system. Probably some persons suffering from homosexual conflicts develop paranoia or paranoid conditions. Kinsey's [12] finding that 37 per cent of men have had homosexual experience and that 4 per cent have had no other than homosexual contacts, further indicates that only a small fraction of those having had homosexual experience become paranoid.

Meyer taught that the paranoid condition appears in peculiar individuals, rather than in people who are actually ill. He recognized the following grades in the development of paranoiac reactions:

(*a*) Uneasy, brooding, sensitive type, with an inability to correct notions and to make concessions;
(*b*) Appearance of dominant notions, suspicions, or ill-balanced aims;
(*c*) False interpretations, with self-reference, and a tendency to systematization without or within;
(*d*) Retrospective or hallucinatory falsifications;
(*e*) Megalomanic developments or deterioration, or intercurrent acute episodes;
(*f*) At any period antisocial and dangerous reactions may result from the lack of adaptability and excessive assertion of the aberrant personality.*

* From D. K. Henderson and R. D. Gillespie, *A Textbook of Psychiatry* (5th ed.). New York, Oxford, 1940, 273.

It seems probable that paranoid individuals are persons who develop delusions in conjunction with some mental illness. These delusions are then maintained in an attempt to rationalize the illness in a fashion which makes that ailment tolerable to the patient's own self-regard. Whether the delusions are persecutory, erotic, litigious, or grandiose depends on the patient's previous experience and present circumstances.

Neurology and physiology

No one anatomical defect or deviation, no one physiological dysfunction, no one biochemical or bacteriological change has been found to be associated with the paranoid state. It is not uncommon for an individual who is suffering from some physical ailment such as tuberculosis or rheumatism to develop pronounced paranoid traits. Not infrequently, a patient who is convalescing from influenza, pneumonia, or some other exhausting illness will have such a paranoid episode. It is as if the physical weakness attendant on the illness had released or made possible an exhibition of personality deviation which was beyond all self-control. For example, a dermatologist had pneumonia from which he made an uneventful recovery. When he returned to his office, he was possessed of ideas that his patients were trying to infect him with the very skin diseases which he was attempting to treat. He also believed that they were telling stories to his medical colleagues concerning his own professional incompetence. Realizing the abnormality of his mental condition, he sought aid. After several weeks of talking daily to a psychotherapist and of resting from all his professional duties, his delusions disappeared. He had full memory for the details of the psychotic episode, but had no understanding of why he had developed these peculiar ideas and delusions.

Certain drugs commonly produce delusions. The false interpretations and faulty judgments shown by the drunken man are examples. Different drugs bring forth different sorts of delusions. Whether the type of delusion is directly produced by the drugs, or whether the drugs only act to release latent personality possibilities, is unknown.

Psychology

It is of interest that despite the delusions, hallucinations are rare. When they do occur they are usually the "visions" seen by the fanatic. Eidetic imagery (the ability to experience clear external, perceptual imagery, usually at will) occurs in certain dementia praecox patients. An instance [11] of the

utilization of this eidetic ability by a paranoid patient to reinforce her delusion that she had been secretly married to the Duke of Windsor shows how such a person does make use of such sensory or perceptual material to reinforce a delusional system.

Delusion is considered by Cameron [4] to be basically a disorder of interpretation. Misinterpretations and their results are discovered and realized by every normal person from childhood on. The continual interaction between personal attitudes and the attitudes of other persons, together with the modifications and corrections which are involved, results in adequate socialized behavior. Much of this interchange depends upon language. The use of language and the increasing store of experience make possible not only greatly increased opportunities for other and more complex misunderstandings, but also provide more frequent opportunities for the correction of misunderstanding. Thus, the normal person builds up a fairly comprehensive system for checking his ideas and beliefs before much damage is done or before there is much need for detailed explanation. Paranoid thinking creates a serious defect in the ability of the individual to alter his perspectives and, as a natural result, there is an accumulation of progressive misunderstandings.

The paranoiac, in falsely ascribing functions, attitudes, and intentions to other persons, does far more than merely project his thoughts upon them. He actually sets up hypothetical relationships (which are to him real) between other persons and himself, and organizes them into a pseudo community made up of true persons and imaginary phenomena. These imaginary functions are formed from the fragments of social behavior of other persons. The fragments are misunderstood by the paranoiac in his thinking.* The actual movements, remarks, and behavior of people about him become cues, signals, threats, and warnings within his pseudo community of plotters.

So long as the paranoiac's thinking is confined to fantasy, hurt feelings, wondering, and suspicious observations, he does not get into any real trouble. As soon as he acts on the basis of his thinking, he implicates others in the consequences of his act, which can no longer be controlled by himself as they were in fantasy. (The action makes the fantasy irreversible.) The addition of action to fantasy gives the false impression of a sudden onset of disordered thinking. Actually, the only difference has been that some action was substituted at some point for the fantasy which had been going

* The general argument of paranoid proof usually takes this form: "Didn't you say this?" [Yes] "Didn't she do this?" [Yes] "Didn't I tell you that?" [Yes] "Well, that certainly proves what I thought!" Each statement is true, but the conclusion is completely erroneous.

on for a long time. As a final outcome, either his acts are detrimental to his surroundings and meet retaliation, or his fellows tolerate, ignore, or isolate him because his conduct is such that it cannot be incorporated in their own activities.

Chapter summary

The different disorders in behavior and mental life considered in this chapter all have as a central point a defect of judgment or belief; that is, they involve *delusion* associated with other forms of psychological disorder. Involutional melancholia usually occurs in the sixth decade of life. It is an agitated depression accompanied by absurd delusions. There are several ways of describing this form of psychological disorder. The symptoms have been related to a rigid personality structure, to an exaggeration of maladjusted habits of thought existing over most of the adult life, and to injured feelings of self-importance. Admittedly, these psychological theories are speculative. No adequate physiological or anatomical basis has so far been established. The condition of many such melancholic patients is benefited by either electric convulsive therapy or psychosurgery.

The benign stupors, perplexity states, and sensitive reference psychosis are delusional states complicated by other psychotic symptoms.

Paranoia consists of chronic, systematized, delusional ideas which are well integrated with the rest of the mental life of the individual. Paranoia differs from the paranoid type of dementia praecox in that the delusions are well systematized, chronic, and usually unaccompanied by other evidence of psychopathology or dementia. The true paranoid is hospitalized only when his false ideas come into such sharp conflict with the rights of others that he endangers the health and safety of himself or others.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 12 *Old Age and Senile Psychoses*

AN OUTSTANDING FACT CONCERNING THE STRUCTURE OF AMERICAN population groups is the increasing median age of the people of the nation, with an associated increasing proportion of older persons. In 1820 the median age of the entire population was 16.7 years; in 1860, 19.4; in 1900, 22.9; and in 1940, 28.7. In 1850, 12.4 per cent of the population were aged over 45; in 1870, 14.9 per cent; in 1890, 17 per cent; in 1910, 18.9 per cent; in 1930, 22.9 per cent; in 1950, 29.3 per cent; while in 1970 it will be almost 38 per cent.[4] This increase is attributed to two major causes: (*a*) a declining birth rate so that there are fewer infants and children whose age would serve to keep the median age of the total population down; and (*b*) the greater absolute longevity of persons who have survived infancy. All of the medical progress of the past century has contributed to the length of life. The decrease in deaths due to smallpox, diphtheria, appendicitis, and tuberculosis allows more individuals to survive to the sixties and seventies. In 1850 only 2.6 per cent of the population were aged over 65, while in 1950 the percentage was 7.9.

Several different names are applied to the psychological facts and changes which take place in the latter part of life. Old age, later maturity, dotage, second childhood, declining years, mental decline, all are used to characterize the fact that the process of aging is associated with a true decline in both physical and mental abilities. Generally, the term senile is used to designate aging changes which are thought to be somewhat abnormal or due to disease. There are large individual differences both in the time of life at which this decline becomes apparent and in the rate and amount of decline over a period of years. Most of these changes are regarded as "normal" since both the person in whom the changes occur and those about him have a fair amount of insight and understanding of the nature of the

alterations. Even the behavior of the old man in his "second childhood" or of the old woman in her "dotage" is not regarded as abnormal, since it appears so regularly and has been accepted as part of the usual course of human life.

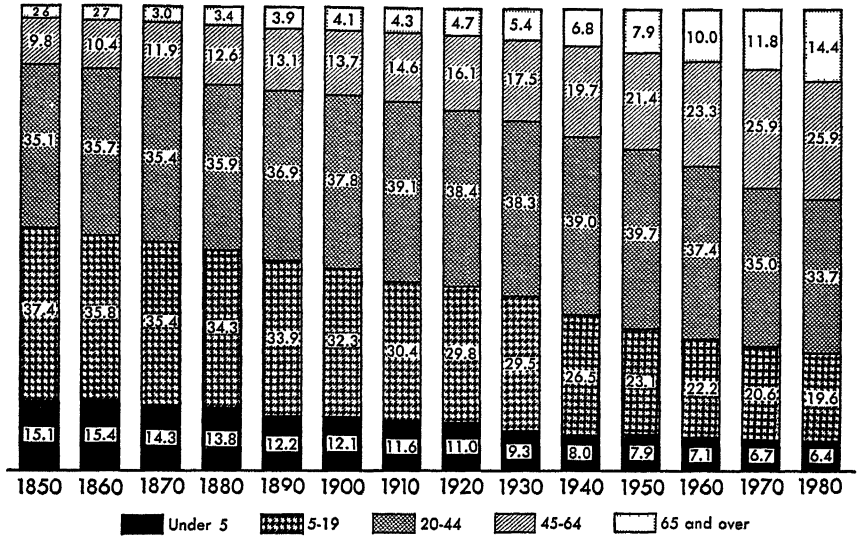


Fig. 8. Per cent distribution of total population by age, United States, 1850 to 1980 (1950 to 1980 from official estimates).[4]

There are many diseases to which older people are subject which affect both behavior and mental processes. Usually these diseases have a well marked physical basis so that the mental symptoms are regarded as attendant and not too much stress is laid upon them. It is usually assumed that if the physical condition could be remedied, the mental symptoms would take care of themselves. There are two principal psychotic states which are prevalent after age sixty; namely, cerebral arteriosclerosis and senile dementia. Cerebral arteriosclerosis usually starts with a rather sudden onset of confusion and excitement, together with other forms of psychotic behavior, following which there may or may not be a period of remission. This condition in theory at any rate, is due to the "hardening of the arteries." Senile dementia has a more gradual onset, marked by complaints of weakness, nervousness and irritability; an exaggeration of lifelong character traits and prejudices; and the appearance of frank memory defects, states of confusion and delusions. The psychological differences between these two conditions are slight.

Psychological changes in old age

The physical and mental changes which commonly accompany aging are not always understood by younger people. These changes may or may not be forerunners of a true mental abnormality; in any event, a better knowledge of the changes should clarify certain sorts of behavior which are of interest to the student of abnormal psychology. Three lines of evidence concerning these changes are available—the experimental, the clinical, and the introspective.

Experimental findings

Extensive experimental studies [11] have shown that certain motor skills and reactions (such as reaching and grasping, or operating a pursuitmeter) reach their peak of efficiency in the twenties and then constantly and slowly decrease throughout the remainder of the life span. The decline in perceptual acuity which depends to a large degree on the anatomy of the sense organ receptors begins about age 30. For example, the average number of taste buds per papilla from birth to age 20 is 245. From 20 to 70 the average is 208, while it declines to 88 for the age period 74–85.

Learning of new material, if interest, motivation, and sufficient time are provided, shows little decline until after age 45, but it does show a marked decline between 60 and 80. Scores on a standardized intelligence test given to comparable age groups show that the decline is slight in the twenties and thirties, somewhat steeper in the forties, fifties, and sixties, and falls rather rapidly from seventy to ninety. Ability to generalize at age eighty is equivalent to that at age eight.[5] However, an active mind, wide and varied interests, persistent endeavor, well-formed and practiced mental habits, plus the knowledge increment, will in individual cases tend to compensate in later age for the activity and speed in comprehension that typifies the twenties. With respect to the pursuit of active interests, either in business or in play, older folks are less sociable than younger both because they are less interested in the people who are associated with them and because they have less energy to expend.

From the experimental work three generalizations may be drawn: (*a*) There is a slow, constant decline in those abilities which depend directly on the anatomy and physiology of the organism. Psychological decline goes hand in hand with physiological decline. (*b*) There are wide individual differences in this deterioration and the way in which different individuals compensate for it. An old man of superior ability will exceed a young man

of average ability. (*c*) The more the behavior involves experience and considered judgment, the more resistant it is to impairment. Mental "power" declines more slowly than mental "speed."

Clinical description

The psychology of normal old age is never easy for younger persons to understand. Only those who, remaining healthy, live to be old themselves can give an adequate account.[2] In normal old age, though the emotional experiences are less vivid than in earlier life and though self interests have become less urgent than they were, the intellectual pleasures continue and may even increase despite the increasing impairment of memory. There are certain joys of meditation and of contemplation that are greater than those experienced when younger. Indeed many of the characteristics of the elderly which seem to those who are younger to be so undesirable or essentially unpleasant are experienced as the-way-things-are and felt to be neither undesirable nor unpleasant. Even the idea of the nearness to death is quietly contemplated. As one aged psychologist put it, "To have once deliberately oriented ourselves to death before our powers fail us gives us a new poise, whatever attitude toward it such contemplation leads us to."

Still there are certain characteristics of the aged more apparent to the young than to their elders, namely, conservatism, stinginess, restlessness, and selfishness.[10] Insofar as conservatism is associated with good judgment, which is the greatest asset of age, it is of real value. Even though it inhibits the formulation and execution of new ideas, conservatism facilitates the dispassionate and impartial weighing of evidence which is essential to all judgment and which is difficult to achieve when one is young and enthusiastic.

There are two tendencies which contribute to the establishment and maintenance of conservatism. The first is an indirect result of the slowing up of mental life, which always occurs to a greater or less extent as one grows older. This aspect is primarily a physical matter, but it has distinct psychological effects. It is more difficult to reason quickly and intelligently about new problems than it is to exercise judgment dependent on well established habits. This difference between original thinking and habit becomes more marked when physical decline begins to show itself. We all attend and are interested in activities in which we are proficient or which we can do easily and we avoid tasks in which we expect to be incompetent. As one grows older one automatically restricts one's interests to the familiar routine and shuns new ideas and occupations. Thus, one becomes conservative and

rationalizes it in many ways, rather than admit to oneself the evidence of one's growing incompetence. The second factor is the idea of death, which is an inevitable development in old age. The greatest change which one can imagine is the change from living to not-living; hence, changes are reminders of the supreme one, which becomes an ever closer prospect. Young people are confronted with change as are old people, but for youth it usually means growth and development, not death.

A second characteristic is stinginess, which is a form of conservatism. Conservatism is nowhere better exhibited than in the investments of an old man, and the petty economies of the aged. One cannot be sure how long life will continue; one's days of earning are over; one desires things to continue as they are, expending as little as possible.

A third characteristic is restlessness. This characteristic is not always present but when the awareness of bodily infirmity or the idea of death becomes increasingly conscious then both mental and physical restlessness appear. The mental restlessness often shows itself in some form of pottering activity or in a disorganized sort of intrusion into the affairs of others.

A frequent unpleasant characteristic of senility is selfishness which appears in many personal relationships. Among younger people, selfishness is camouflaged, concealed, and rationalized. Old people need affection and support from those whom they earlier loved to serve. Hence, the aged person makes demands that are unfair and undesirable. If the parent is to be kept happy, his opinions and prejudices must be respected, no matter how old-fashioned.

Personal account

"We old people have been given a present; it comes wrapped in a rather wrinkled cover. Quite a heavy package it is and not too easy to carry . . . The gift is a score or more of years than we were wont to expect . . . We used to take it for granted that at sixty we were a finished product, unalterably and beautifully "jelled," but we learn that we are far from finished; so we buckle down to a job of trying to make ourselves as healthy, happy, and useful as possible . . . We are inclined to be garrulous, and as impatient, combative, sensitive and irritable as spoiled children. If our inhibitions have not been built up by wise parents and painful experiences, we are not pleasant to live with. We look backward too much, forward to the immediate future too little, talk too much; listen, read, and think too little, and most of us pray only during an emergency.

Writing of old age is much like describing an illness; a chronic illness never to be cured but which must be endured stoically and cheerfully, with courage and fortitude, and more important still—with humor and curiosity . . . Mental

and physical inertness we must fight with our whole being. Otherwise, we develop hypochondriasis, the most dreaded of old age diseases . . .

A beloved old lady of eighty said to me that old age is like pioneering in a new country because everyday something new is learnt about our change in bodies and minds. She said that even if these changes are not pleasant, *she* found them interesting! This is one way of dealing with the loss of hair and complexion, the larger shoes, shoulder humps, caved-in mouths, and general slowing up of mind and body. There is certainly no closing our eyes to these inevitable facts. But to balance such humiliating discomforts, it is pleasant to know that we care very much less about such things (or do we?). Then, too, there is the balm of realizing we are no longer able to suffer the mental agonies often endured in youth and middle age. Almost nothing can happen after seventy plus to give us the unbearable distresses of mind and spirit that we somehow managed to live through in the past. Perhaps we have developed a harder shell to cover our emotions. Perhaps our glands are less active. I *know* we have a better sense of proportion . . . I think in old age we are more easily amused and have a greater gratitude for daily comforts and blessings than younger persons, that are apt to take things for granted . . . After seventy or eighty I think few of us greatly dread death. There is a natural shrinking from an unknown future; but here again *curiosity* plays the part; we want very much to know what is going to occur after the familiar *now*." *

Basis of the psychological changes in old age

Practically without exception every bodily tissue and function shows a wasting or decline after the peak of efficiency which is reached in the twenties. The loss in visual and auditory acuity, the changes in bone and skin, the decreased muscular efficiency are all apparent. The brain and nervous system actually show marked destruction or alteration of one or another part when they are examined post-mortem. This deterioration is in many cases accompanied by a thickening and obstruction of the arteries of the brain as well as in many other parts of the body. Whether the changes in the arteries are "normal" ones, in the sense that the process of aging itself is normal, or whether they are due to pathological or infectious causes is a matter of dispute. No matter what the cause or where the tissue has ceased functioning, the loss interferes with psychological integration. The memory defects and personality changes are explicable in terms of the organic loss. The elderly person may be thought of as a damaged organism doing the best it can with the functional parts which remain.

* Anon., "How it Feels to be Seventy-five and a Woman," from G. Lawton, *New Goals for Old Age*. New York, Columbia University Press, 1943, 180–185.

The weakness of this organic explanation rests on the failure to establish any consistent relationship between the anatomical tissues involved and the psychopathology observed. One might reasonably expect to find that the psychological changes are related in some regular fashion to changes in certain brain areas or, at least, to the gross amount of tissue which has become nonfunctional. No regular relationship has been established.

The lack of correlation between organic tissue destruction and the psychological symptoms has led some authorities to the viewpoint that the mental deviations are but exaggerations of the personality characteristics or temperamental tendencies which marked the person when he was younger. They say that many of these senile cases were conservative, rigid, constricted, perfectionists during most of their adult lives. When the organic changes of old age occur, the rigidity of the habit systems is said to make it impossible for the individual to compensate for brain damage; therefore, the gross mental changes result. This explanation is open to dispute because so little is known about the early personality of the senile patient. We must remember that his friends and relatives are themselves either aged or dead; also, that the history is usually given by the children or other younger individuals to whom he has always seemed relatively old and, therefore, rigid.

The more dynamic psychologist will hold that the fact of the organic damage to a senile brain is indisputable, but that from a psychological viewpoint the important question is the why—the dynamics—of the changes in mental life which occur. Although the details of the dynamics of senility are pretty speculative, in general it is held that the changes are essentially those of regression.[6] By *regression* is meant the return to infantile or childish habits and patterns of response. Freud has pointed out that there is a "repetition tendency" marking the psychology of the aged individual. Hamilton [7] has shown that when any animal (or human) is confronted with a persistently baffling situation, it usually falls back on its initial mode of response. When this repetition tendency occurs, it is a falling back upon modes of functioning characteristic of earlier periods of life, which were adequate at that time but which are now inappropriate. The physical disabilities, reduction in self-control (Ego-inhibition), and the environmental handicaps that confront the aging person constitute frustration, and the frustration brings out this repetition tendency.

Other psychoanalysts have claimed that the repetitive tendency and rigidity are a self-defense against anxiety. The rigidity is thought to be the expression of the refusal of the aged to admit the possibility of a change in their evaluation of their environment or any possible alteration in their life

values. The relative weakening of the Ego and intellect gives rise to the psychotic outbreaks characteristic of the aged. It is only through the increase in intellectual efficiency and self-control that the aging individual can maintain his mental equilibrium. Any attempt to change from some level of adjustment already achieved, even though none too satisfactory, or to give up certain habitual forms of behavior in order to make some new readjustment to an untried situation, must increase the feeling of anxiety and will work against intellectual integration and efficiency. Hence, the individual regards changes as dangerous and is hostile and irritable toward them. The changing world is regarded with fear and suspicion. The solution of any problem or new demand for reorientation is thought of as a threat to self-control, which already is strained by the task of mastering the physical defects attendant on old age and by the basic fear of death.

This explanation, which in part depends on the theory of a return to childish modes of thought (narcissistic regression) has not been confirmed by experimentation. Cameron [3] investigated in a comparative fashion the thought processes of normal adults, normal children, schizophrenic patients, and senile dements. He found that neither in senile dilapidation nor in schizophrenic disorganization was a language or ideational product obtained which was comparable to the material produced by normal children. In other words, the regressive process in senile dementia did not express itself in ideas or in verbal tendencies that were comparable to those shown by children. There was a change in the thought processes of senile patients, but the change was not in the direction of similarity to the thought processes of children, so that it was not truly a regression.

Senile dementia and cerebral arteriosclerosis

These two forms of dementia are advanced or terminal states, resulting from the more ordinary changes of physiological deterioration and psychological regression. Senile dementia, generally speaking, is a dementia so severe that the person is disoriented, confused, and no longer able to care for himself adequately. The onset of the dementia is usually more sudden in cerebral arteriosclerosis, which depends on the "hardening" of the arteries of the brain. This hardening produces an interference with cerebral nutrition due to an arterial failure, either in the form of a small rupture of the blood vessels or in blockage or toxic processes in the vessels. The ways in which the psychological abnormalities show themselves in these dementias of old age vary from person to person. The following case history of a senile dementia patient is fairly representative.

CASE 19: Mrs. S, aged sixty-eight, had a public school education; was of average intelligence; married; no children; had no real marital difficulties. She had had no serious illnesses or operations during her previous life. She then had an attack of influenza from which she did not seem to recover. Physically there were no outstanding symptoms, but she became mentally deranged. She became irrational, assaultive, and untidy, so that it was impossible to manage her at home. When brought to the hospital she was resistive and confused, she cried easily, and complained of many delusions concerning her health. She was incoherent, irrelevant, and rambling. She was disoriented as to time, place, and person, and her memory impairment was pronounced.

When asked what was the matter with her, she replied, "Injected you see, the spinal nerve which has to do with—what—hypnotize—I said they started so fact that. I remember my mother, grandmother and grandfather, they keep telling it to you till I find death. Gee, what she gave me that back. You have completely done that. Father had the same thing done to him that I have done to me. Uncle Abe was perfectly healthy, so that proves nothing was hereditary, that proves that, which the sick wards injected into my head, in my thinking head, in the head that does the controlling. Take me out, if you will take me out. I know didn't anybody put me in here. I'm talking about my life and health right now. My Aunt Hattie talked to me most. My mother is a very jealous person."

Her mental confusion gradually cleared up. Emotionally she remained very unstable, having frequent crying spells and complaining about small events or imaginary happenings. After six weeks in the hospital she returned to her home. Six months later her behavior again became such that home care was impossible. She was returned to the hospital, where she died after several months.

Senile dementia represents the last stages of psychological deterioration accompanying physiological decline. There is a general imperception (that is, impaired registration of external impressions). This impairment is attributed to the clouding of consciousness and disorientation which, in turn, are thought to be related to the deterioration processes taking place in the cerebral cortex itself. In conversation there is repetition, dearth of ideas, many unimportant details, and falsification of memory. The changes in memory itself are usually quite marked. Paramnesia, in the sense of fabrication and falsification to fill the gaps in memory, is common. This falsification is not based on a conscious process of deception, but is related to the general disorientation and mental confusion which pervaded the mental life of the individual. There is also a loss of memory for both immediate and past events, although the memory for past events tends to remain more accurate than that for recent. This type of memory loss was called by Ribot the "Law of Regression," in that recent memories disappear first, whereas childhood memories are the last to go.

The judgment of these patients is markedly impaired. There is a lack of insight into their own mental and physical condition. They express confused delusions and illusions of a temporary and transient nature. For example, an individual will be quite upset because of some fancied robbery and will talk about it for a day or so and then forget, or point out himself that it was only his imagination. There is a marked intolerance for any change in the routine of the life or care which such patients obtain, even though the change may be one which adds decidedly to their comfort and well-being. These patients are variable in their emotional expressions; they are unstable, irritable, indifferent, lack sympathy and, in general, show a marked deviation from the previous control of their emotional life. In the more severe episodes there may be periods of delirium marked by hallucinations, disorientation, profound clouding of consciousness, incoherence, restlessness, and destructiveness.

This entire process is a true dementia, in that it is progressive and irreversible. The rate of this process varies among individuals, but in extreme cases the terminal mental status is one of practically complete "idiocy."

The behavior and mental life of the arteriosclerotic or toxic case differ somewhat from that of the senile dement.[18] Usually, there is a relatively sudden onset, marked by headaches, insomnia, and mental confusion. Judgment usually is somewhat better than in the deteriorating senile; insight persists for some time, although it is gradually lost. Delusions of reference and infidelity are common. Patients are frequently depressed and emotionally unstable, laughing or weeping very easily. They are unable to make decisions, they are restless but easily fatigued, and they show a progressive forgetfulness. There may be intervals during which there is marked improvement or even apparent recovery from the acute symptoms, so that the patient is able to conduct himself with a fair degree of prudence. This form of dementia is a steplike loss, whereas the true senile dementia is a gradual decline. The steplike process may end in a terminal dementia as profound as that reached by the gradual decline.

Facts and figures

The marked increase in the number of elderly people in the general population has already been mentioned. There has been an even sharper increase in the number of aged persons hospitalized because of psychosis. In New York State, for example, there has been more than a 500 per cent increase between 1910 and 1945 of first-admission patients diagnosed as cerebral arteriosclerosis. Part of the increased number of senile patients in

mental hospitals comes from a real decrease in the number of "old people's homes," almshouses, county homes, and the like, where the aged members of the community were formerly cared for. Likewise, there is a continuing increase in the numbers of the urban population at the expense of the rural population. Urban population groups are less able than rural populations to provide home or family care for the aged.

In 1946 there were more than 40,000 mental hospital patients in the United States who were suffering from senile or arteriosclerotic dementia. During the same year, 28,949 individuals aged over 60 were admitted for the first time to the mental hospitals, of whom 22,863 were diagnosed as senile dementia or cerebral arteriosclerosis. The annual death rate of these hospitalized seniles is about 500 per 1000. The ratio of men to women is 1.15 to 1.0 for senile dementia and 1.52 to 1.0 for cerebral arteriosclerosis. Among the first-admissions the ratio of urban to rural patients is 2.05 to 1.0 for senile dementia, and 2.47 to 1.0 for arteriosclerosis. Of patients in these categories in the state mental hospitals, 95 per cent are in dependent or marginal circumstances, while the educational achievement is high school or better in but 9 per cent of them.[9]

Recently information has become available giving us some notion of the relative role of constitution and environment in the problems of the aged. This information comes from a study [8] of 237 identical twin pairs and 548 fraternal pairs aged over sixty. The life span of 58 pairs, both of whom died after age 60, showed that the identical pairs had an average of 37 months between their deaths while the like-sexed fraternal twins had an average difference of 78 months and the unlike-sexed, 127 months. In two instances pairs of identical twins died only 5 and 25 days apart. In another instance a pair of identical twins were admitted to a state hospital practically at the same time even though one had been a farm wife who raised a large family and the other had remained single working as a dressmaker in a large city.

After age sixty the physical similarities of the identical twins became more pronounced so that the same twin partners continue to be as indistinguishable in various stages of senescence as they had been in childhood. The similarities include graying and thinning of hair, configuration of baldness, wrinkle formation, and the type and extent of eye, ear, and tooth deficiencies.

Psychometric examination of fifty-one pairs of these elderly twins was made using the Wechsler-Bellevue and Stanford-Binet Intelligence Tests, the Cornell Coxe Performance Ability Scale and the Price Directions Test. The test results were not too widely different between the twin pairs, whether

identical or fraternal. But the average difference between the intellectual performance of the identical twins was so much less than the average difference between the fraternal pairs that it was statistically significant. One clear difference between the fraternal and identical twins was found which the investigators attribute to psychological factors. Identical twins (either sex) have significantly fewer children than fraternal twins. This is not due to sterility or impotence, but rather to marital disharmony. The spouses of identical twins very frequently complain of having been unable to overcome the unusually close relationship between their spouse and his identical twin.

Summary

A most important change which is taking place in the population composition of America is the increasing median age which is associated with an increase in the portion of the population aged over forty-five. In contrast to the extensive psychological knowledge, available and useful, regarding the first twenty years of life, not too much is known concerning the last twenty (or more) years. There is an unquestionable increase in the number of older persons who require care in mental hospitals. Probably because the last years of life are regarded by many to be "useless" and the aged mental cases "hopeless," little is done to improve our understanding of older people and their particular problems.

For the most part the psychological changes of elderly persons are understandable in terms of the biological decline in efficiency, social and vocational attitudes of the community and the personal reactions to increasing disability of all sorts. It has been said that one must be old in order to really appreciate the psychology of the aged. However, some observation on the part of the more youthful shows the basis of many of the characteristics of the aged. There is nothing too confused or bizarre in the mental life of the aged, except when terminal dementia is reached.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 13 *Organic Disorders of the Brain*

A WIDE VARIETY OF UNUSUAL KINDS OF BEHAVIOR AND MENTAL EXperience may be evoked by changes in the structure or function of the brain. If the brain fails to make the proper developmental growth, if toxic or infectious processes affect it, if it is injured, or when new growths or other structural changes take place in or on the brain, then psychopathology is apt to occur. The study of the organic basis of such psychological phenomena constitutes the medical speciality of neurology.

The psychosomatic aspects of neurology are but partially understood. Many organic abnormalities are known—many functional abnormalities are known—but only in certain instances is the interrelationship between structure and function understood. There are conditions in which there is profound, widespread pathology, either in the form of damage or infection, where but little effect on either organized behavior or the mental life of the individual can be demonstrated. There are conditions where a very small, restricted structural damage brings about a disorganization of both behavior and mental life, which seems to change completely the personality of the individual. There are gross disorders in the mental life and behavior of the individual, with no regular or constantly occurring pathology which can be demonstrated by our present methods of investigation. Because the history of medicine has so regularly demonstrated that abnormal function (either physical or mental) depends upon structural alteration or infection, the basic assumption of most contemporary scientists is that some brain pathology is the basis for the mental abnormalities, even though the site and nature of the pathology may not at present be recognized or identified. Whether organic pathology can be brought about by maladjusted habits or emotions is regarded as debatable.

Other chapters deal with the psychopathology of epilepsy, general

paresis, old age, and feeble-mindedness, all of which depend largely or wholly on organic brain pathology. In the present chapter, we will take up the psychopathology associated with brain tumors, paralysis agitans, spastic paralysis, and Huntington's chorea, all of which offer examples of organic pathology with attendant psychopathological changes.

Psychopathology in cases of brain tumor

Tumors, either benign or malignant, are not uncommon in the central nervous system. Deviation in cell growth with consequent development of tumors may involve a wide variety of bodily tissues and may take place at almost any of the stages through which the tissues pass during development.

From one series of over 31,000 autopsies done in general hospitals,[16] brain tumors were found in 1.7 per cent of the cases; while in another series of 13,000 autopsies, brain tumors were found in 2 per cent of the cases. In 1,642 autopsies done in a mental hospital, 1.7 per cent were found to have had brain tumors, indicating that such tumors are not the ordinary basis of any great number of cases of mental illness. Brain tumors are more frequent in men than in women, the ratio being 4 to 3. They occur at all ages of life, but are more common between 30 and 50. They are not related to race, nationality, social, or economic circumstances. Mental disturbances are said to accompany brain tumor in 40 to 100 per cent of the cases. It is usually a matter of importance to determine whether the psychopathology shown by a patient has a definable organic basis or whether it is essentially "functional" (meaning no organic basis can be established). Much assistance can be given the physician and surgeon by psychological test procedures, and much research is being done to devise and standardize tests which will have greater practical usefulness in distinguishing between organic and functional disorders.

General behavior [4]

Mental disturbance varies widely, depending upon the location of the tumor, the rapidity of its growth, and the state of its development. In the early stages, irritability, restlessness, and aggressive tendencies are fairly common. The patient may have vague feelings of discomfort or actual pains in his head. He may be tense, impatient, and subject to outbursts of anger or violence. As the tumorous growth increases, his restlessness may be succeeded by a general overactivity extending to an active delirium. Some

patients become quite excited and destructive, for example, tearing up the bedclothes and tying fragments to the frame of the bed in a fantastic manner. This excitement is usually followed by a period of apathy in which unusual effort must be made in order to perform ordinary daily tasks. In the later stages of the illness, excited and apathetic periods may alternate.

Speech

The variations in the disorders of speech which are frequently associated with brain tumors are determined by the location and extent of the tumor as well as by the prevailing mood or degree of mental disturbance. In the early stages, the patient may complain in an anxious or hysterical fashion, as though the illness were purely imaginary. It is often difficult then to distinguish whether the complaints are genuine expressions of organic disability or faulty adjustment to personal problems. Somewhat later, there comes a lack of spontaneity, together with a monotonous and retarded quality in both the tone and the manner of speaking. Such a patient must exert unusual effort in order to comprehend questions and to elaborate a response. The more complicated the question, the more laborious is the formulation and expression of the response. Within a few hours the same individual may pass from a mute condition into one where he answers questions quite adequately.

Speech disorders (aphasia) are present in about 10 per cent of brain tumor cases. In some individuals the speech may deteriorate to little more than a jargon. For example, the speech of one patient ran as follows, when he was asked to identify certain objects:

> [Nickel?] "25, ain't it?" [Key?] "25." [Purse?] "50." [Dollar bill?] "Dollar, ain't it?" [Watch?] "50 cents." [Bottle?] "50—ain't it 50?" [Bill?] "50—now ring a bell." [Memo book?] "50 cent piece." [Clock?] "Ah-ah-I don't know." When asked to repeat, "Methodist Episcopal," he said, "Misty pel;" and to repeat, "Electric Hippopotamus," he said, "Electric cohoes pocroes." *

Mood

States of anxiety, apprehension, depression, euphoria, or indifference go with brain pathology. Some clinicians believe that the mood of the patient is determined largely by the type of personality which existed before the onset of the illness. However, there are so many individual variations that

* G. W. Henry, "Mental Phenomena Observed in Cases of Brain Tumor," *Amer. Jour. Psychiat.*, 1932, *12*, 427.

it is difficult to draw any general conclusion on this point. These mood changes do not seem to take place in any orderly sequence, so far as any single patient is concerned, nor are they regularly related to the location or type of the tumor. In the early stages, the patient may lose initiative and courage; later, he may become impatient, peevish, and irritable; and as the disease progresses, he tends to be more seriously concerned about himself, acting as though contemplating some terrible fate. As his symptoms become more distressing, he is seldom at peace and can no longer attend to his work, becoming more and more hopeless in his outlook. In the final stages, most patients seem to become less sensitive to pain, less capable of appreciating the seriousness of their illness, to have less insight, and to lose contact with the reality surrounding them. They are no longer concerned about their illness, social conventions, or responsibilities. They may laugh and joke in a hilarious, unrestrained manner. They may become careless in their personal appearance and indifferent in their manners and personal care. Other patients become so deeply depressed that they contemplate suicide and make impulsive attempts at self-destruction.

A peculiarity of humor or wit which occurs in some tumor cases is called *Witzelsucht* (joking ailment) and consists of an ill-timed jocularity and facetiousness, occurring together with euphoria and lack of insight. A distinction is made between *Witzelsucht* and *Galgenhumor* (gallows humor), which bravely jokes in the face of death. Wilson [16] cited the example of a gently bred woman who, when he hinted at the seriousness of her brain tumor, slapped him playfully on the arm and said, " Go on, silly! My head hasn't got anything in it."

Hallucinations

Those hallucinations which accompany the progressive growth of a brain tumor are not thought to be different in any psychological way from those which occur in other forms of mental disease. More than half of the tumor cases have visual hallucinations, while about 30 per cent have auditory hallucinations. They may be experienced at any time during the course of the illness. A large proportion of the visual hallucinations consist of flashes of light, vividly colored lights or objects, or contrasting black darkness and dazzling light. Animals of all kinds and sizes and in all degrees of activity are reported. The auditory hallucinations include voices, singing, ringing bells, buzzing, roaring, crackling, and occasionally meaningful sentences or entire conversations. In some individuals hallucinations of taste, smell, or movement occur.

Orientation

Ordinary orientation of time, place, and person depends upon a constant reference to the external world represented through incoming sensory stimulation. When there is an interference with any of the incoming sensory material, the individual is bound to be disoriented. As a rule, the orientation for time becomes defective first, then the patient is unable to identify his surroundings, and finally he fails to recognize even his own relatives. Not uncommonly, the patient returns mentally to an earlier period of his life. He may give correctly a former address, or he may seem to have returned to the scenes of his childhood. In the more severe forms, he may not be able to find his way about his own house, or even to locate himself properly in his own bed. He will wander about aimlessly, becoming lost in his own living room. He may be unable to dress himself, trying to get his feet through the sleeves of his shirt. He will rarely have any conception of the date or time of day.

Insight

The degree of insight varies in different persons, and in the same individual at different stages of his illness. The lack of insight may be expressed in general behavior, facial expression, or emotional attitude, as well as in speech. At least half of the patients, at some time during their illness, recognize that they are seriously ill. They may make some vague reference to their head being out of order, while others complain of confusion and memory disorders. As long as the patient maintains contact with reality or is kept alert by pain, he usually localizes his illness in his head and often complains bitterly of both failing mental ability and physical strength. One patient protested to his physician, saying, "I've really got something," while another, who had been considered delusional because he insisted that he had a cancer in his brain, was actually found at autopsy to have a brain tumor.

Paralysis agitans [16]

The cause of this disorder, which is also called "Shaking palsy" or "Parkinson's disease," is unknown in the majority of cases. Certain cases follow sleeping sickness (epidemic encephalitis), others follow carbon monoxide poisoning, and still others are thought to depend on some hereditary predisposition. The disorder depends on a destructive process occurring in certain portions of the basal ganglia of the brain. James Parkin-

son in 1817 was the first to give a systematic account of the symptoms of the disease. His description, in part, is as follows: "Involuntary tremulous motion, with lessened muscular power, in parts not in action and even when supported; with a propensity to bend the trunk forwards, and to pass from a walking to a running pace; the senses and intellects being uninjured." [11]

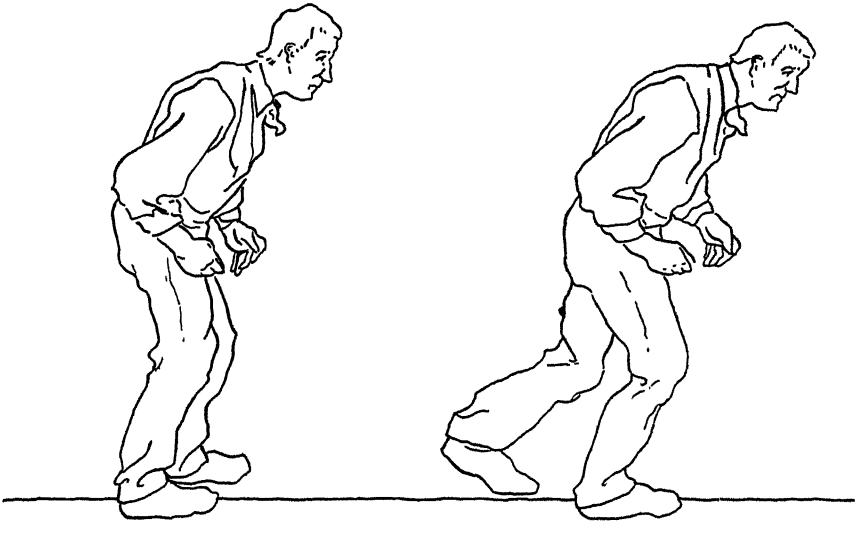


Fig. 9. The gait and stance of the paralysis agitans patient.

It is estimated that paralysis agitans constitutes less than 1 per cent of neurological cases. It is found in all countries. It occurs in all economic or social groups. It occurs somewhat more frequently among men than among women, the ratio being about 10 to 7. The most frequent age at onset is between 50 and 60. At the beginning of the illness, there is a general slowness and stiffness of movement, a rigidity of posture, an infrequent blinking of the eyes, and a characteristic position taken by the hands when the person is at rest. As the disorder develops, there is added an increasing trembling of one or both of the hands and arms, so that the hands, unless clasped, are in a constant tremor. The patient complains of awkwardness in all of the finely coordinated manipulations common to everyday life, such as holding a pen, shaving, or buttoning. The tremor of the tongue, lips, and larynx brings on what has been described as "murmuring an eternal litany." The tremor of the hands is present during rest but disappears during purposeful movement, particularly during the initial phases of such movements.

The facial expression is described as masklike; the features are "starched," or described as a "reptilian stare." There is little or no play of expression,

such as one sees in ordinary existence. Slowness of movement is a counterpart of the muscular rigidity. These individuals move in a deliberate fashion. For all of the acts of daily life, they are slow in getting started. The inertia is such as to bring purposeful activity almost to a standstill.

Mental symptoms

In a psychological investigation of 66 Parkinsonian cases, Booth [1] utilized the psychoanalytic method as well as the Rorschach test and handwriting analysis. He reported that the Parkinsonian personality before illness is characterized by a basic urge to action expressed through motor activity and industriousness together with striving for independence, authority, and success, within a rigid and usually moralistic behavior pattern. The factors which give rise to this sort of personality structure depend on a constitutional tendency to aggressiveness; a functional prevalence of locomotor function; a tendency toward identification with the dominant parental figure; and responsiveness to social values. To these are added such accidental factors as having had an inferior position regarding competition in childhood and having a low general physical vitality.

The disease symptoms, according to Booth, appear when these basic personality attitudes are thwarted either in fact or symbolically. The thwarting results in compulsive motor activity and rigidity of behavior. Certain traumatic events serve to precipitate or facilitate the onset of this disease. These are physical events leading to inefficient activity (fractures, injuries, arthritis), physical exhaustion due to protracted illness, or social restrictions such as professional disappointment, family disappointment, or loss in business. Booth believed that the health of the potential Parkinsonian patient depends upon a balance between an active independence and self-assertive life on one hand and a rigid consideration of social responsibilities on the other. The illness begins when this equilibrium is upset. He found that systematic psychotherapy could be successfully carried on in many cases by dealing with the specific anxieties. In some cases the psychotherapy actually reduced somewhat the physical disability; in others it made the physical symptoms easier to live with.

Spastic paralysis [8]

Spastic paralysis (infantile cerebral palsy, Little's disease, birth-injury palsy, cerebral diplegia, hereditary spastic diplegia) is a gross form of motor disability due to organic brain changes which exists from birth or shortly

thereafter and affects the entire life span. The cause and extent of the brain damage in most cases are unclear or unknown. Sachs [14] separated these cases into three groups: (*a*) prenatal, in which the cause is difficult to determine; (*b*) true birth palsy, in which the injury is acquired during labor; and (*c*) the acute or acquired palsy, in which there is thought to have been some damage due to injury or infection during the first years of life.

Spasticity (the leading symptom) is a condition of rigidity of the muscles, associated with inadequate voluntary control. There are wide differences in the variety and degree of spasticity. In some instances, only one side of the body or one limb is affected; while in extreme cases, all members of the body as well as the organs of speech may be involved. In nearly one third of the cases the afflicted individual is born prematurely. The symptoms are usually not observable until the child is several weeks or months old. Several months after birth, there may be noticeable inability to sit or to hold up the head, together with difficulty in swallowing. Speech is almost always delayed and imperfect in the severe cases. Growth and development are markedly retarded, although improvement in the control of muscular coordination up to the age of twelve is common.

In general, the picture is one of pronounced motor disability existing from an early age. The motor skills acquired by the normal individual in early childhood are delayed, and are achieved by the spastic only after years of training and practice. The extent of impairment and the amount of improvement vary considerably. Phelps [13] stated that there are between 40 to 50 cases per 100,000 of the general population, and, of these cases, about one third are mentally retarded. Whether the mental retardation evidenced in some cases is due to essential feeble-mindedness, or to interference with the usual mechanisms of expression and lack of schooling, it is impossible to say.

With such a grave physical handicap, it might reasonably be expected that the course of personality development would show some deviation, which would be accentuated by the psychological problems of adjustment which the individual must face. Most handicapped persons have several fields of activity in which they can compete adequately with normal people of their own age; but the patient with spastic paralysis, particularly the more extreme type, in which all limbs as well as the speech mechanism are involved, lives in a world in which any adequate motor response is difficult or impossible. Social relationships constitute an additional source of difficulty for the spastic child. Children can understand why another child uses crutches, or walks with a limp, but cannot understand the chaotic, jerky incoordination of the spastic youngster.

Some insight into the psychology of these individuals can be gained from such autobiographical accounts as Carlson's *Born That Way*,[2] Hoopes' *Out of the Running*,[5] or Hoskins' *The Broken String*.[6] Hoskins reported that adolescents with spastic paralysis may not be consciously aware of their limitations unless they are continually brought to their attention.

In order to understand more clearly the effects of spastic paralysis on the personality development, Landis and Bolles [8] made a psychological study of twenty-five women who were so afflicted. No one of the group studied was completely handicapped. Rather, the spastic who was more or less in social competition with healthy persons was chosen for investigation.

A major hypothesis of present-day psychological theory maintains that the course of the psychosexual development of the individual is a most important element in the development and structure of the total personality. For this reason, Landis and Bolles compared this phase of growth and experience in spastic patients with that of physically and mentally normal women. No differences were found between spastics and normals with respect to the physiology of sex function. Fewer of these patients than of the physically normal women reported that they had masturbated. Ten of these twenty-five had never had dates with boys. This is a much higher proportion than was found in physically normal girls of similar ages. The lack of heterosexual orientation in some cases seemed to be related to shyness, which made the girls hold back or avoid contacts with boys. Girls who were not shy had many dates and social contacts with boys, even though they were severely handicapped.

In spite of the limited autoerotic practices and heterosexual contacts of the spastics, no evidence was obtained which would indicate that homosexual attachments had been substituted as a sexual outlet. Actually, there was little or no evidence of homoerotic experience. Immaturity on the part of many of them was the most outstanding psychosexual characteristic. However, they were not all immature; but as a group they were more likely to be immature than were the physically normal women.

There were some individuals in this survey who were acutely unhappy. Twelve of them reported that they had at some time wished they had never been born. In spite of this apparent dissatisfaction with their lives, eighteen of the twenty-five said that they would rather relive their lives than stop living, if such a choice had to be made. Despite the wide difference in the degree of handicap within this group, no real differences in emotional control or expression were found which were associated with the degree of handicap.

The following is a composite picture which Landis and Bolles drew up to represent the personality of the twenty-five spastics which they studied:

CASE 20: Miss S was twenty-five years old when interviewed. Her parents had realized before she was a year old that she was not developing normally and had taken her to their family physician. He told them that they should care for her and treat her just as though she were a "normal" child. As she grew older she did learn to walk alone but her gait was very uneven, and she fell frequently. When she was eight years old she started to school. Being with other children brought to her the first acute realization that she was different, and could not do the things that they did. She was anxious to join in their games, but held back because she was shy. She tried very hard to do well in her schoolwork for the next few years, so that in this regard at least she could keep up with the other children; but even when she knew her lessons perfectly she became so agitated and confused when the teacher called on her that her performance was poor.

She became used to the limitation of her activities by her handicap, so that she took it for granted. She actively resented the way that people looked at her in the street, and became very much annoyed when little children imitated her. She felt that her parents had been wrong in not encouraging her to do things for herself. She had a few girl friends of her own age, but did not enjoy being in large groups, because they made her "nervous." She had her first date with a boy when she was eighteen, and this was a very casual relationship.

She was very anxious to get a job so that she could help contribute to the family's budget, as she felt that they had done much for her and given up much because of her. In her late teens she began to get discouraged, feeling that her condition would never improve. There had been very definite improvement when she first went to school, but now there was no further progress. Sometimes she became acutely discouraged and depressed. These feelings were apt to come when she wondered about what would happen to her in the future, and how she would get along if her parents died.

When she first started to look for a job, she thought that it was very unfair that employers should discriminate against her because she was handicapped, and felt that she could have carried out the work adequately and should have been given a chance. However, her effort to gain employment was rather haphazard. Her desires for the future were not clearly formulated. She thought that she might like to marry if the opportunity presented itself, but she had never been really fond of any one particular boy. She was still closely tied to her family in thought and feeling although at times she actively resented and reacted against them.

This history illustrates two major points: first, that in spite of spastic paralysis existing from birth, such persons do not differ from normals in many aspects of personality development; and second, those differences in emotional attachment and maturity which are observed seem to be logical consequences of the environmental forces surrounding the individual.

Huntington's chorea

This disease is of particular interest to the student of psychopathology, since there is consistency in the following characteristics: (*a*) definite hereditary component; (*b*) onset relatively late in life with mental and



Fig. **10.** Facial contortions in Huntington's chorea.

physical abnormalities which develop without any detectable symptoms previous to the onset; (*c*) undetermined brain pathology; and (*d*) a progressive and marked mental deterioration. Choreas are disorders which are distinguished by persistent rhythmical or jerky muscular movements. Saint Vitus' dance (Sydenham's chorea) is the commonest and best known. Huntington's chorea is a rare affliction. The beginning symptoms usually appear between thirty-five and forty years of age. It is marked by jerky twitching movements, an increasing irritability, shyness, and a terminal dementia.

Although this condition was recognized in the early years of the nineteenth century, it remained for Huntington[7] in 1872 to provide the first clear description and differentiation. He said that there were "three marked peculiarities in this disease: (1) Its hereditary nature. (2) A tendency to insanity and suicide. (3) Its manifesting itself as a grave disease only in adult life." Concerning its hereditary nature, he pointed out that "whenever either or both the parents have shown manifestations of the disease, and more especially when these manifestations have been of a serious nature, one or more of the offspring almost invariably suffer from the disease, if they live to adult age. But if by any chance these children go through life without it, the thread is broken, and the grandchildren and great grandchildren

of the original shakers may rest assured that they are free of the disease." Huntington based his description on the observations made by his grandfather, his father, and himself, all of whom had been physicians in the same locality on Long Island and who had observed several generations within certain family groups who exhibited this disease picture.

Huntington's chorea has subsequently been reported from all parts of the world, in all races and nationalities. It accounts for about 0.2 per cent of the first-admissions to American mental hospitals. For the most part, affected families are found in rural communities and are of the lower middle economic class. In one collection [3] of 962 cases (521 men, 441 women) were five legislators, one judge, two university professors, two ministers, one eminent surgeon, three authors, two inventors, and two organizers of public institutions. The average age at onset of the disease is 37.5 years. A very few cases have been recorded where the onset was before age 20 or after age 60.

Once started, the disease never stops; temporary remission or amelioration seldom, if ever, interrupts its course. The progress of dementia is slow in some cases and rapid in others. The average length of life after onset is from 10 to 15 years, although the range is from one to 35 years.

Vessie [15] reported on the appearance of this affliction through twelve consecutive generations, tracing it from three individuals who came to America from England in 1630. Of interest is the role which certain of these choreic persons played during the period from 1647 to 1697 when in colonial Connecticut the legislators, ministers, and judges let the hangman settle their belief in witchcraft. The description of the behavior of certain of the witches who were condemned, together with our knowledge of the reappearance of chorea in many succeeding generations of their families, seems conclusive evidence that the suspicion of witchcraft was sometimes based on the chorea shown by these individuals. "It was believed that the weaving motions, jerking backward and forward of the head, peculiar grimacing and twitching, puckering of the lips, squirming shoulders, spasmodic movements of the chest and diaphragm, and the involuntary jerking of the hands, arms, feet and legs, represented the suffering of Christ during crucifixion; and that this affliction was a curse inherited by these sad choreics from their forefathers for having dared to derisively pantomime the Saviour." *

Vessie concluded that Huntington's chorea is transmitted directly and manifested persistently from generation to generation. Other investigators

* P. R. Vessie, "On the Transmission of Huntington's Chorea for 300 Years; The Bures Family Group," *Jour. Nerv. Ment. Dis.*, 1932, *76*, 563.

have shown that from one fourth to one half of the children in any affected family develop the disease. It is impossible to foretell which of the children in any family will be affected and which will escape. The following history is typical of this disease:

CASE 21: A thirty-two-year-old white male, with less than four months Naval Service, was referred to the Neuropsychiatric Unit with the complaint of head twitching and staggering gait. He had sought medical advice when his shipmates began accusing him of being intoxicated. Actually, he rarely used alcohol.

Physical examination showed a mild stammering, an unsteady gait, and an occasional involuntary jerking and twitching of the head. He had been in good health until two years before examination. His attention was first called to his unsteady walk when an employer accused him of being intoxicated and sent him home from work. He quit this job but was able to hold his next position for only 13 days before he was "laid off," charged with intoxication. He next became manager of a liquor store and stated that there "no one made any fun of me." (This practical solution of his occupational problem is interesting.) Involuntary twitching of the head started about one and a half years ago. It was infrequent and occurred especially at night or when he was fatigued. His personality make-up had been considered exceptionally stable.

The patient was the third oldest of seven living children, the oldest being thirty-six and the youngest nine years of age. A sister committed suicide at the age of sixteen shortly after she had developed a very unsteady gait similar to that of the patient. No other siblings were as yet affected. His father died several years ago at the age of fifty-four. He had been a semi-invalid for many years and was confined to a wheel chair for seven years prior to his death. The seaman described his father's severe stammering, the involuntary movements of his head and upper extremities, and his staggering gait. In his last years he had showed profound mental changes, including rambling, incoherent speech, pronounced memory defects, and extreme emotional lability. His stagger had increased in severity until he was unable to walk at all without assistance. All but one of the paternal aunts and uncles had been similarly affected. One uncle died with the disorder at thirty-five; another became psychotic and is now hospitalized. One aunt died at fifty-nine after having been an invalid for at least twelve years; another with the disease still survives. The paternal grandmother died at the age of sixty. Seven years prior to her death she had been confined to a wheel chair because of "tremor." *

Psychopathology

This history illustrates the way in which the chorea develops. In the earlier stages of the disease, voluntary action is usually unimpeded, so that

* This history is condensed from S. M. Lesse, "Huntington's Chorea," *Jour. Nerv. Ment. Dis.*, 1946, *104*, 84–87.

habitual and ordinarily coordinated movements are carried through successfully, with the involuntary, choreic action starting in again as soon as the voluntary act is completed.

Gradual, progressive, unremitting mental deterioration occurs in many, but not all, of these patients. Usually the earliest symptoms are emotional rather than intellectual.[10] The organic defects are experienced in various ways. The patient appears irritable, easily excited, quick tempered, curt, and shows deviations from the usual self-control which marked his personality. For example, one such patient became intolerable at her home because of her continuous nagging. Others are cranky and eccentric or indulge in faultfinding. Still others show disorders in judgment, becoming grandiose and behaving in a very superior fashion. These early manifestations are usually unaccompanied by any insight, ideas of illness, or of personal responsibility. In certain families, suicide is quite common; in others, the faulty control is shown by excessive use of alcohol or drugs, promiscuous sexuality, or destructive violence.

As the disease progresses, the intellect becomes more involved, with memory showing progressive deterioration. Both recognition and recall are disturbed, and there is increasing inattention and imperception. If one asks such a patient to give the names of as many flowers or vegetables as he can remember, he will proceed somewhat as follows, with long pauses between: "Carrots . . . potatoes . . . turnips . . . potatoes . . . carrots . . ." In the earlier stages there is merely a restriction of interest in the world, but with time, this progressive mental disorganization shows itself in disorientation, intellectual slowing, indifference, and poverty of ideas. Some patients are able to read and converse a little until the end of their lives; in others dementia becomes profound and complete.

Neuropathology

Since this disease shows itself in a fairly clear-cut form, both as to symptoms and development, one should expect a uniform pathology somewhere in the nervous system. A great many neuropathological studies have been made of the brains of patients who died of this disease. Pfeiffer,[12] reviewing both his own work and that of others, concluded, "It is obvious that the only agreement which exists among investigators is that an organic change in the brain occurs . . . It may be stated that the pathology of chronic degenerative chorea consists not only in a degenerative process in the nervous elements of the cortex, but of the thalamus and corpus striatum."

Other than the fact that the disease runs in families and that the symptoms and course of the affliction are relatively constant from case to case, all else in the way of explanation is at present speculative.

Chapter summary

The four conditions which have been discussed in this chapter are basically due to organic structural changes in the brain. They illustrate certain relationships which must be considered in any attempt to relate mental pathology to physical pathology. In no one of these conditions has sufficient evidence been obtained to indicate that the varying combinations of attendant personality deviations are referable in more than a very general fashion to the particular localization of the organic brain damage. On the other hand, there is much evidence that the psychopathology of these conditions does depend, in part, on some given neuropathology and, in part, to faulty habits, emotional trauma, and the like.

Marked psychological changes are usually associated with brain tumors, where we are dealing with the growth of new tissue that replaces and destroys the normal neural tissue of the brain. The organic brain damage in paralysis agitans is limited to the midbrain areas. The personality of the patient is in great part a direct reflection of the motor disturbances. In spastic paralysis there are organic lesions which may be located in various midbrain areas or, less frequently, in other parts of the brain. A third of these spastic patients are mentally defective or retarded; the remainder manage to develop normal intellects and personalities within the limits set up by the handicap itself. Finally, in Huntington's chorea we find varying combinations of organic brain changes in conjunction with marked motor and mental involvements. Unfortunately, not enough information is available to put forth a satisfactory hypothesis to account for the psychological and physiological relationships in these syndromes as well as many other conditions which are associated with brain damage.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 14 *General Paresis*

GENERAL PARESIS IS THE OUTSTANDING EXAMPLE OF A MENTAL DISorder whose true nature was clarified by experimental research methods. The symptoms, both physical and mental, are fairly clear-cut and not usually confused with those of other mental or physical diseases. There are laboratory tests (Wassermann, Kahn, colloidal gold) which serve to confirm the diagnosis made on the basis of the physical and mental symptoms. The course of the physical and mental changes is relatively predictable. The cause is known, namely the invasion of the central nervous system by the *spirochaeta pallida* (the organism which causes syphilis) with a consequent destruction of the tissue of the brain itself. Methods of treatment have been discovered, which are adequate in a majority of the cases, and the action of the methods is understood. General paresis is also called "general paralysis of the insane," "dementia paralytica," "cerebral syphilis," or "syphilitic meningoencephalitis," depending on the authority who is being followed or the symptoms which are being emphasized. The earliest description of this condition was published by Haslam in 1798.[8] Bayle in 1822 gave the first detailed observations of the relationship between the physical and mental symptoms, which make up the separate, distinct disease as it is recognized today. Essentially, general paresis is a form of progressive motor paralysis accompanied by a peculiar form of mental deterioration.

The history of the speculation concerning the nature of general paresis is quite interesting. During the eighteenth and nineteenth centuries this condition was said by various investigators to be due to alcoholism, use of tobacco or coffee, or to moral offenses. These interpretations were based on the early observation that the disease occurs much more frequently in men than in women. Others said that it was an accompaniment of mental excitement and overwork or of outstanding intellect, since its occurrence was fre-

quently observed among government officials, military officers, poets, and musicians. Others believed that differences in the climate had an influence, since it was rather infrequent in the south of France and Italy and much more common in northern Germany. Austin [1] in 1859 held that the disease was due to powerful impressions of a painful character which were inflicted upon the moral sense of the patient. Still other investigators held that the disease was due to sexual excesses, particularly to masturbation.

Esmarch and Jessen in 1857 first proposed the idea that syphilis was the essential cause. This idea caused a great deal of controversy; but it was gradually accepted and by the beginning of the twentieth century it was generally held that there was a high degree of association between general paresis and previous syphilitic infection.

When Schaudinn and Hoffmann [11] in 1905 first identified the *spirochaeta pallida* under the microscope, the way was clear for the understanding of the basic relationship. The final proof was provided in 1913 by Noguchi and Moore [10] who first demonstrated the presence of the spirochete in the brain tissue of the paretic patient. Since that time repeated investigations have amply verified that general paresis is the result of syphilitic invasion of the central nervous system.

Facts and figures

General paresis furnishes about 5 per cent of the first-admission patients and 4 per cent of the resident patients of the mental hospitals of the United States. The average age at first-admission is 44 years for men and 42 for women. The ratio of male to female patients is 3.5 to 1.0; of urban to rural, 2.9 to 1.0; of Negroes to whites, 4.1 to 1.0; of Jews to gentiles, 0.6 to 1.0. The first-admission rate for this disease dropped from 8.2 per 100,000 of the general population in 1911 to 4.6 in 1945. This decrease is due to better and more widespread medical treatment of primary syphilitic infection. One survey made in Denmark failed to find a single case of general paresis in a large sample of cases that had received adequate medical treatment during the initial stages of syphilitic infection.

Following the discovery of fever therapy in 1918 there has been a marked increase in the rates of remission and recovery from this disease. Where formerly 80 to 90 per cent of paretics died within the first four years following onset, after a rapid dementia and physical deterioration, the picture is now reversed with only 5 to 10 per cent of treated patients dying during a corresponding period.[5, 6]

Case history

CASE 22: Mr. P, aged fifty-three, was a well-known attorney. He had been very successful in his profession and had enjoyed high and fast living. He knew all the best people, belonged to many clubs and political organizations. He had traveled extensively. He was noted for the fact that he was always very well dressed, usually appearing at court wearing striped trousers, black cutaway coat, and a flower in his buttonhole.

The first abnormal symptoms were noticeable about two years before he was admitted to the hospital. His wife said that the first unusual behavior which she could remember was that of certain peculiarities in dress. He had been very careful about all his color combinations but, about two years previous to coming to the hospital, he began wearing colored shirts with peculiar neckties and a different style hat of a rather conspicuous nature. Subsequently, he began drinking more heavily, became extremely egotistical and domineering, and began to start flirtations with waitresses and show girls whom he had previously scorned.

Two months previous to his entry into the hospital, he showed very bad lapses of memory. He would forget things that were said to him from day to day and ignore his courtroom appointments. He became very petty over small items and, at the same time, he would talk about buying automobiles, diamond necklaces, and mink coats for his many women friends. He seemed to lack interest in his work and neglected several cases in court to the extent that he was reprimanded by the judge. On the last such occasion he seemed to realize that something was wrong, and on the next day did not come to his office at all. He was found in a low-class barroom talking loudly and in a grandiose fashion, with his clothing mussed and dirty.

His wife and chauffeur were able to persuade him to get into his automobile, whereupon he was driven to the hospital. Although he resisted vigorously, he was admitted and on examination found to be suffering from general paresis. He was of dilapidated appearance, untidy and unkempt, and kept moving about in a mechanical, stilted fashion. He was disoriented for time and place, saying that he was in a hospital in a different city and giving the incorrect day and month. At times he merely responded to questioning with short sentences; at other times he was quite verbose and expansive, rambling a great deal in his speech. Occasionally, he would turn and walk out of the room in the middle of a sentence. All of his spontaneous remarks were either irritable or grandiose. He said that he made a million a year and had a billion stored away. He said that he was a famous lawyer, engineer, architect, musician, and scientist. He denied that he had ever been ill and said that he had been placed in the hospital under false pretenses by criminals who wished to get even with him, or by his business associates who wanted to get control of his riches. He had no insight into his own condition. When asked what schools he had attended, he recited, "Public school No. 3, 9,

15, 11, 27, St. Ann's, West Point, Oxford, Harvard, Paris, and the Medal of Honor."

During the first six weeks in the hospital his condition remained about the same. He would attempt to walk about the ward entirely nude except for his hat and a cigar. He tossed his clothing and toilet articles out the window. At the table he would mix all of the food on his plate into a stew and eat it rapidly with a large spoon. He would propose to the nurse on the ward three or four times a day, offering her a million dollars and three automobiles. He would ask for a pencil and paper and would write what he called telegrams to his friends, asking them to come and rescue him or to bring him food, whiskey, or money.

Fever therapy was instituted and after three weeks he was much improved. He was tidier, better natured, and talked more rationally. He remained cheerful and cooperative, was not nearly so grandiose, and seemed to realize that he was ill, although he had no insight into his previous condition or his present mental sickness. He slowly improved in physical and mental status; however, although quiet and cooperative, he never regained complete insight nor was his mentality at all comparable to what it had been before the onset of the illness.

Psychopathology

A *loss of judgment* is one of the first abnormalities to appear in general paresis and one which continues throughout the course of the illness. The paretics will not notice contradictions or unclearnesses in their own thinking or in the conversation of others. In doing problems they are distracted by the sound of the numbers [$9 \times 9 = 99$] or will give any numerical answer that occurs to them. In reading, they often do not notice omissions or distortions, nor do they attempt to correct such errors. They will repeat the content of a story or tell of an event in their life very incompletely with alterations and omissions, and without realization of the senselessness of what they have just said. They complacently bring forth some absurd plan, disposing of obvious objections in an irrational fashion. They will tell deluded stories and seem unable to pursue an ordered train of thought, so ending up with senseless conclusions which have no connection with either their original idea or with the surrounding circumstances. These patients gradually lose their grasp of common sense and everyday logic, as well as their ability to observe facts and to distinguish properly between their own imagination and actual occurrences. Mentally they seem to be in a sort of dream world in which their own ideas, wishes, fears, and everyday occurrences are mixed up, with no distinction between fact and fancy.

It is the *intellectual weakness* and *deterioration* which give paresis its own particular mental quality. There is seldom a connected, delusional

system of ideas which exists more than a month. Usually, the most diverse ideas and delusions get entangled with each other, without regard to obvious contradictions and discrepancies, so that the senseless and fantastic ideas of the paretic are carried far beyond the limits of probability or even possibility. The activity of their imagination seems to far outrun their powers of self-criticism, making for the wealth and exuberance of their changing delusions.

Disorders of *memory* are usually profound. They are as severe as in any form of dementia but show marked improvement if the patient responds successfully to treatment. The paretic forgets the more recent happenings. He may not remember what occurred to him yesterday, what letters he wrote last evening, or what the doctor told him this morning. As the general deterioration continues, the patient may seem fairly alert and intelligent but cannot remember what he did fifteen minutes previously or whether he has ever seen his physician or nurse before, although he may have been in their care over a period of months. Memories of the more remote past are fairly well retained, although obvious fabrication sometimes enters into the account which the patient will give of his childhood.

The *loss of time relations* is quite marked. The paretic is unable to organize his everyday perceptions into any linked chain of memory images, so that he cannot measure the interval between events or arrange the past in definite periods of time. He cannot recall the sequence or interrelationships of occurrences. Time limits melt into each other and are blotted out. Although he may be able to give the year of his marriage and the age of his oldest child, he still may be unable to state how long he has been married or how long his child has been in school. He seems unable to make use of such items as the appearance of the ground, position of the sun, leaves on the trees, or temperature, to orient himself in time. In spite of snow on the ground and heat in the radiators, he will say it is July when it is January.

A marked and often important mental change is *difficulty in calculating*. The patient may retain the ability to recite multiplication tables but cannot make use of them in doing simple calculations. He will make arithmetic errors when required to carry numbers in memory, as, for instance, in the subtraction of 15 from 73, he may give the answer of 68.

There is also a continuous and progressive *loss in the store of ideas*. This loss is more in connections between ideas than in the single elements themselves. Occasionally, for short periods of time a patient will be able to give surprisingly correct answers regarding specific events, but will be unable to recall the connections between them. Very frequently the missing links between ideas and memories are filled in by pure imagination. This filling in is for the most part drawn from the environment and has only

a superficial and temporary relationship to the immediate production. Such transient connections are quickly replaced by new ones which arise from the sense perception, thoughts, and moods of the patient. He is highly distractible, so that any accidental interruption diverts him to an entirely new train of aimless, confused thought. At other times a monotony of thought is marked; the patient will talk repetitiously about his few remaining ideas. He seems to have forgotten what he has just said or is unable to suppress those few ideas that come into his mind.

The patient's *disposition* is affected in much the same way as his intellect. In the earlier months he usually shows an increased excitability. He will be changeable, easily angered, sulky, emotionally excited at small events, will lose control of his temper or will have fits of crying and wailing with self-pity. There is a decrease in the deeper and finer feelings. He will be careless in the face of danger, lack foresight with respect to approaching difficulty, and be quickly reassured after severe misfortune. The pleasure which he once had in reading, art, or music, or the satisfaction of home life and friends, gives way to indifference and slovenliness. Abrupt alteration in emotions is common. In the midst of happiness there will be a sudden storm of tears, or in the middle of a depressed or depressing account of his illness he will respond, in a childish fashion of delight, to an unexpected joke or small gift.

These changes add up to an *alteration in character and personality.* In place of stability, independence, and clear thinking, there is a marked indecision, instability, and a foolish, headstrong waywardness. As voluntary activity is reduced, suggestibility increases. He is credulous and trustful, falling victim to the most obvious frauds and extortions.

In the behavior of the paretic there is an increasing disregard for the demands of propriety and custom. He often behaves as though intoxicated, being tactless, lacking in inhibitions, and grossly offensive, without in the least realizing what he is doing. He is careless of his appearance, and may be untidy and unclean. He will form friendships with strangers, boasting in a blatant fashion and discussing his most intimate affairs without the slightest inhibition. Many patients display an increased sexual excitability so that they may tell lewd stories in a loud voice in public places, seek doubtful companions and involve themselves in debauchery. They will eat greedily anything in the way of food, helping themselves from the plate of a neighbor and becoming angered if in any way restrained at the table.

As the disease progresses the *motor symptoms* become more and more pronounced. The disturbance of speech becomes quite obvious. Repetition of such test phrases as "Methodist Episcopal," "Around the rugged rock,"

and "She picked thistles," is done in a slurred, often unintelligible fashion. In some, there are mannerisms such as grimacing, dancing about, ceaseless rubbing and picking, grunting, smacking, chewing, or monotonous, long-continued sighing. Movements are clumsy, slow, and awkward. The patient cannot catch a rubber ball thrown to him. He has difficulty in buttoning his



Fig. 11. Elated paretic patient.

clothing. He is unable to thread a needle or to tie a knot. His gait is unsteady and shuffling. His features become flabby and expressionless while his voice is monotonous or tremulous. In his handwriting he leaves out syllables, crosses out words, makes mistakes in spelling, and repeats letters or phrases in an irrational fashion.

In brief, the most prominent psychological changes which take place in this disease are a peculiar loss of judgment, memory, and emotional stability, together with a progressive disturbance in motor control.

Inner experience

As one might expect from the description of this process of dementia, no patient can give any adequate autobiographical report of his experience. During the illness the disorder of memory and of time linkage of experience

prevents any recording of his experiences. Those patients who recover, either spontaneously or as a result of one or another variety of therapy, do not have very much recollection of their illness. They will give accounts of isolated events but have no connected memory of their hospital stay or of their own inner life or behavior. Frequently, those memories which they do have are in part erroneous. They mix together two or more events or add to actual occurrences fantastic and imaginary settings which to them are as real as any other part of their memories.

In general, it appears that the experience is a fantastic, dreamlike state which the person himself does not understand or evaluate while living through it. After recovery, his memory of the illness is fragmentary in the same way that a normal person will remember fragments of a long, involved dream which seems partly dream, partly real, but which he realizes to be dreamlike.

Relation between physical and mental pathology

Since in this disease we know the cause, together with the nature and extent of the physical damage to the central nervous system, it would seem that we should be able to correlate fairly closely the amount of destruction of brain tissue and the extent of the mental deviations. Unfortunately, no one, thus far, has been able to define in other than the most general terms the relationship between the brain pathology and psychopathology. Ignorance of this essential relationship is also true in epilepsy, senile states, brain tumors, and other organic brain conditions. In trying to establish such relationships, several general questions should be considered even though no satisfactory answers can be given.

Why does only a fraction of the population who contract primary syphilis develop general paresis? Among white males who have contracted primary syphilis, 8 per cent develop general paresis; among white females, 5 per cent; among Negro males, 2 per cent; and among female Negroes, 0.3 per cent. It is known that some racial or ethnic groups have little or no general paresis, while other racial groups have high percentages. For example, primary syphilitic infection is very common among American Indians and yet general paresis has never been observed in a full-blooded Indian, although it does occur among half breeds. This relative "immunity" has been observed and verified but is unexplained.[5]

No one has brought out evidence in favor of a specific susceptibility to general paresis being determined by heredity. Actually, all careful studies indicate that general paresis is not an hereditarily determined disease.

Various investigators have advanced the hypothesis that general paresis may be due to some specific strain of spirochetes, offering as evidence that two or more persons infected by the same source subsequently developed general paresis. Other instances have been found where the same source of infection led to general paresis in one of those infected and to other forms of syphilis in others.

It has been pointed out that in many cases of paresis there is evidence of some head injury, frequently mild, before the onset of the paretic symptoms. Others have advanced the idea that, from individual to individual, the various tissues of the human body may vary in resistance to disease. Hence, the paretic may be thought of as one whose brain tissue lacked high natural resistance to syphilis. There is no final or definite answer to the question of why one syphilitic develops general paresis while another does not.

What relationship exists between the prepsychotic personality of the paretic and the course of his symptoms during the disease? Many, but not all, paretic patients show a symptom picture during this illness which seems to be a combination of paresis and schizophrenia or manic-depressive psychosis. Furthermore, those patients whose symptoms are marked by depression or mania tend to recover when fever (or shock) therapy is employed, while those whose symptoms are schizoid do not show as high a percentage of remission when treated. It may be that the differences in constitutional resistance to disease by those of schizoid or cycloid make-up enters into the picture of general paresis, but if they do, there are still many paretic patients who cannot be called either schizoid or cycloid and so cannot be explained in these terms.[3, 12]

In those cases in which recovery or marked improvement is obtained, how does the subsequent mental life of the person compare with his mental life before the disease? Most individuals who recover or improve are somewhat blunted in intellect, emotional life, and in their general mental capacities. The degree of this blunting is thought to be related to both the amount and the location of the brain tissue which was destroyed. It seems that there is a general lowering or deterioration of mental function which may be very marked during the disease, and that as the individual recovers, a reorganization takes place so that there is a variable loss in the different mental abilities.

Outcome of treatment

Until the discovery of fever therapy, the chances of recovery or improvement in general paresis were very poor. (An account of the discovery of

fever therapy is given in Chapter 22.) Table 3 gives the present-day picture of the outcome of treatment.

Table 3. Comparison of outcome of general paresis with respect to treatment [7]

TREATMENT	PERCENTAGE OF PATIENTS IN WHICH THERE IS		
	Complete Remission	*Incomplete Remission*	*Death within 4 Years of Onset*
None	3–5	5–15	80
Routine (arsphenamines and heavy metals)	3–5	15–25	60–70
Fever therapy	30–40	30–40	5–10

Explanations of psychological changes

The explanation advanced for the changes in character and personality which mark the acute phase of the paretic illness reflects the basic theory or philosophy of the authority who is being quoted. Kraepelin [4] suggested that the psychic disturbances were dependent not only on immediate brain damage but also on interference with brain nutrition, since the blood vessels leading to the cortex are irritated and inflamed during the disease process. Hence, the mental deviations vary from person to person because of differences in nervous tissue destruction and in terms of interference with orderly nervous function resulting from disturbed brain metabolism.

The psychoanalysts have pointed out that the symptoms are essentially narcissistic.[2] The brain cortex is the central organ of Ego function and when it is damaged by the infection the narcissistic equilibrium is disturbed. The Id impulses arising from lower undamaged portions of the brain give rise to the euphoric mood, the periods of melancholia, and the essential disregard for reality.

The psychobiologist [9] explains the behavior abnormalities as directly dependent on a permanent loss of brain substance. When such a loss occurs it is characterized by deviations in the personality assets of the individual, especially in memory, judgment, and language. These losses permit the outcropping of certain disturbing behavior tendencies previously kept in check by personal and social integration. When there is a complete recovery, it is not assumed that there was a true loss in personality assets, but rather that there was a loss of ability to make use of them.

Explanations of psychological changes in paresis are all unsatisfactory. Why the peculiar symptom picture is so unique in paresis in contrast to the mental changes following other kinds of organic brain damage is unknown.

Summary

General paresis furnishes an example of the way in which scientific research methods can solve the essential problems of a mental illness. The solution of this problem also shows how new problems are raised which demand further research. The disease itself shows clearly the interdependence of physical damage and mental abnormalities. The relationship between the arrest of the progressive damage to brain tissue, the "healing" of the tissue, and the mental reconstruction is a most interesting psychological phenomenon. Systematic studies of this phenomenon should give us valuable new information concerning the relationship of brain injury and psychological loss.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 15 *Alcoholism and Alcoholic Mental Disease*

IS HE CRAZY BECAUSE HE DRINKS OR DOES HE DRINK BECAUSE HE IS crazy? This question is the essence of the problem of the complicated relationship between inebriety and psychopathology. With the question so posed, we have a fairly clear-cut issue from a psychological standpoint and one on which a good deal of direct information is obtainable. Common sense accepts the proposition that there is "something wrong" with the person who habitually uses alcohol in excess. Most of the population "can take it or leave it alone" and cannot readily understand why a few people should be unable to leave it alone. Some alcoholics are definitely neurotic; some are psychotic; and some are neither neurotic nor psychotic. Alcoholism may occur together with any of the other forms of abnormality, so complicating and confusing the symptoms and complaints. Alcoholism also occurs in some persons who show no other evidence of mental abnormality, or rather, show no consistent and characteristic difference from normal behavior, save alcoholism.

In 1950 the population of the United States was approximately 150 million, of whom about 100 million were of "drinking age." Of the 100 million about ½ were users of alcohol. Of the 50 million users 3¾ million used alcohol in excess and ¾ million were chronic alcoholics. Of these only 5 or 6 thousand were admitted annually to mental hospitals for the first time and diagnosed as "Alcoholic Psychosis."

Chronic alcoholism, alcoholic addiction, and alcoholic psychoses

The excessive use of alcoholic beverages brings about a deviation from our accepted standards of normal behavior in some, but not all, persons. The symptoms which result from excessive use of alcohol are abnormal (in

the sense in which we have used this word) since a sizeable percentage of our general population at one time or another during their lives imbibe large quantities of alcoholic beverages and do not become either chronic users or true alcoholic addicts.

A distinction has been made between chronic alcoholism and alcoholic addiction, but it is not always possible to adhere to this distinction, nor is it always of any great importance to do so. In general, chronic alcoholism is defined as those recognizable physical and psychological changes following the prolonged and excessive use of alcoholic beverages. Alcoholic addiction is defined as an uncontrollable craving for alcohol. The outstanding characteristic of the addiction is its compulsive nature. Chronic alcoholism or addiction may exist alone or in combination.

Chronic alcoholism and addiction usually refer to a psychopathological state which is uncomplicated by neurosis or psychosis. Alcoholism may occur in conjunction with almost every type of mental disorder. These conditions are termed *symptomatic alcoholic states,* in that the alcoholism is regarded as a symptom of a more basic disorder, which, if remedied, would at the same time correct the alcoholism. The excessive use of alcohol will complicate any form of psychosis or neurosis, adding unique features to each. Often it is difficult or even impossible to establish whether the alcoholism is merely another symptom of an already existing or a developing psychosis, or whether the psychotic behavior is directly attributable to the chronic alcoholic state. Usually the deprivation from alcohol which results when such a person is hospitalized gives us the clue as to whether the condition is true addiction or a symptomatic alcoholic state. If it is addiction, then the outstanding psychopathology tends to disappear on withdrawal of the alcohol.

Causes of alcoholic addiction

Addiction has been attributed to many factors: personality, heredity, general constitution, psychotic or psychopathic tendencies, environmental factors, occupation, physiological tolerance, and the drinking customs of the community. No single one of these determines the addiction but rather a constellation of several of them brings it about. The relative importance of any particular one of these factors varies with the individual case. Although personality traits enter into the picture, no single type of personality is characteristic of the alcoholic. As to the factor of heredity, members of families in which mental deviations are present are more apt to develop alcoholism than members of families with little or no known mental dis-

orders. "Alcoholic tendency," in the sense that alcoholism in the offspring will result if alcoholism occurs in the parents, is not an hereditary factor.

There are many "reasons" given for alcoholic addiction but, for the most part, these reasons are only rationalizations which state what the drinker hopes to achieve through the use of the beverage. Reasons such as escape, revolt, relief from tension, relief from anxiety, outlet for social and gregarious tendencies, or inflation of the ego are commonly mentioned. These reasons may be meaningful in describing a specific case but they offer no basic explanation of the craving or compulsion to drink that develops in certain people and not in others.

In considering the causes of alcoholism the physiological, psychological, and social effects of alcohol itself must not be overlooked. It is these effects that constitute the basis of the alcohol problem. Alcohol depresses brain activity, affecting first the higher levels of cerebral function. The psychological effects are feelings of relaxation, and release from tension and anxiety. The feeling of well being or euphoria follows during which the person believes he is entertaining, clever, and humorous. He laughs or cries more easily than usual.

The effects of alcohol were demonstrated in an interesting way in experiments conducted by Masserman.[13] By combining electric shock and air blasts with the feeding of hungry cats, experimental neuroses were established. The neuroses were shown by physiological disturbances, cowering, irritability, and refusal to feed in the training box. When the cats were given small doses of alcohol a definite improvement in their neurotic behavior appeared. They were less resistive, entered the cage readily, and showed diminishing fear reactions to various aspects of the testing situation. As the alcoholic effects wore off, the neurotic behavior reappeared. Ten of the sixteen cats tested continued to prefer alcohol to nonalcoholic liquids when both were offered until their neuroses had been relieved by various other experimental procedures. Then, plain milk was predominantly chosen, the preferred drink of normal, self-respecting cats. Masserman said, "Neurotic human beings, like our cats, sometimes resort to alcohol as one means of escape from their pressing intrapsychic conflicts."

Explanations of alcoholic addiction in terms of the physiology of the organism have stressed the effect produced by alcohol on metabolism, the accumulation of toxins which lead to a pathological "thirst" or craving, metabolic poisoning, and possible thyroid disturbance. While these physiological changes afford some explanation of the process of habituation to alcohol, there is no satisfactory physiological evidence available to explain the factors which determine excessive drinking in the first place.

In the correct usage of the word "allergy," there is no such thing as an allergy to alcohol. There may be allergic reactions to substances found in alcoholic beverages (malt, or flavoring materials) but their effects produce symptoms similar to those seen in hay-fever, not those of addiction. When the phrase "Alcoholism is an allergy, which becomes an obsession" is used, it should be understood that it states an analogy, not an explanation.

Personality factors in alcoholic addiction [8]

Many present-day explanations refer primarily to the personality of the individual as the basis of addiction. The importance of these personality factors is probably overemphasized. Personality is one of the determining agents of addiction, but it must be evaluated in combination with biological, physiological, and chemical evidence. There is no specific constellation of personality traits which leads inevitably to addiction. It is conceivable that social and cultural forces may act on any type of constitution and personality to bring about either addiction or abnormal drinking.

Psychological studies which have stressed the personality structure and function of alcoholics are exceedingly varied in nature and in scope. Psychometric studies, psychoanalytic formulations, collated clinical pictures, and statistical summaries have all been presented and all are of value. Certain factors must be kept in mind in evaluating personality studies of alcoholic individuals. In the first place, the reasons for drinking, special personality traits, and manifestations of drunkenness have to be kept apart in the reporting and in our evaluation of the reports. The interchanging of any one of these three factors leads to confusion and contradiction. Second, studies which have been made on individuals suffering from the alcoholic psychoses are not representative of the personality of the alcoholic addict. These psychotics are but a fraction, an unrepresentative fraction, of the total alcoholic population. In the third place, there are two quite different types of addicts—those whose addiction is incidental to social or occupational drinking over a long period of time, and those whose addiction is related to the basic personality structure. These two groups must be kept separate in our thinking, since there is true psychological difference between them. Lastly, no psychological test, method, or procedure has been demonstrated to be of more than suggestive value in dealing with alcoholics. Such persons are usually uncooperative, evasive, and unreliable when one tries to study them with the usual psychological and psychiatric methods.

Wittman,[17] making use of various methods, has studied the developmental and personality characteristics of chronic alcoholics and alcoholic

addicts, excluding the alcoholic psychotics. She reported that in many of these persons the following characteristics may be found:

1. A domineering but idealized and beloved mother and a stern, autocratic father whom as a child the patient feared.
2. A marked degree of strict, unquestioning obedience demanded in family life, with but little personal freedom permitted.
3. Marked insecurity shown by an insistent feeling of need for religious security and a strong feeling of sin and guilt.
4. Marked interest in the opposite sex with many love affairs but poor marital adjustment.
5. Lack of self-consciousness with a particular ability to get along with and be socially acceptable to others.
6. Occasional depressions and periods of marked unhappiness.
7. A keyed-up emotional level; work done under high nervous tension.

Generally speaking, Wittman's studies have made an interesting contribution to our knowledge of the abnormal drinker as he describes or reveals himself after years of overindulgence in alcohol.

An analysis of the personality of alcoholics and nonalcoholics on the basis of their answers to questionnaire items was made by Manson.[12] From his data he concluded that the basic personality of the alcoholics was characterized by: (*a*) anxiety, (*b*) depressive mood swings, (*c*) emotional sensitivity, (*d*) feelings of resentment, (*e*) failure to complete social objectives, (*f*) feelings of aloneness, and (*g*) poor interpersonal relationships. The first three of these traits are neurotic in nature and the last four are similar to those found in psychopathic personalities. The differences with respect to these characteristics between alcoholics and normals were statistically significant.

A somewhat new and different approach to the problem is that of Tiebout.[15] He held that there was no typical prealcoholic personality but that there was a typical superimposed personality pattern that developed later in alcohol addiction, regardless of the original personality structure. This pattern is one of basic egocentricity, which exists without true phobias or anxiety. He held that the typical alcoholic addict was free from most of the neurotic syndrome. He formulated the pattern of the acquired alcoholic personality as one marked by: (*a*) unconscious drive to dominate, (*b*) primarily negative, hostile feeling tone, (*c*) capacity for ecstatic peaks, ("I can do anything," "Everything is wonderful."), (*d*) sense of isolation, (*e*) feelings of inferiority and superiority which exist simultaneously, and (*f*) striving for perfection which creates a strong idealistic trend with marked rigidity and becomes a fruitful source of the overwhelming guilt reactions.

In still another organization of the factors entering into alcoholic addiction Wexberg [16] made use of the concept of a configurational unit to describe the characteristic pattern of drinking. The cycle of craving-drinking-intoxication-hangover represents a unit which tends toward completion and to repetition. It possesses functional autonomy, that is, it has its own internal dynamics, like a portable radio. Once the autonomous process is started it goes on to its natural completion. The cycle is initiated by "that first drink" and then is compulsively completed. What makes the alcoholic what he is, is this autonomy of the intoxication process which becomes more compulsive and more frequent. A change of personal values takes place so that a desire for a drink becomes the prime motivation which far outweighs all other motives or standards of conduct.

There is a wide divergence of opinion among psychoanalysts concerning the basic personality structure of the alcoholic addict.[3] This divergence probably comes from two major considerations: no individual analyst sees very many alcoholic patients in his lifetime, and alcoholics are among themselves a very heterogeneous psychological group. Analysts have mentioned repressed homosexuality, oral eroticism, mother fixation, castration anxiety, and disguised suicidal tendencies as basic drives leading to alcoholism. Such mechanisms are used to explain a wide variety of both "normal" and pathological personality manifestations, so that little of positive differentiating value can be gained from these formulations.

Cimbal [2] made biographical records of the life history of hundreds of individual drinkers. From these records he formulated four groupings which have been of value in classifying the addict. In the first group there is a family history of degeneration in behavior and life adjustment in successive generations. Persons with such a history tend to become *decadent* drinkers in the same way that others become gamblers, adventurers, or narcotic addicts. In general, this group is recruited from families which have "gone to seed." A second group he termed *impassioned* drinkers. These individuals are psychologically and psychosexually immature and their striving for maturity leads to tensions and conflicts from which they seek relief through the development of alcoholic addiction. The third group is made up of the spineless, *stupid* drinkers who may be either of low intellect or of very submissive character. The fourth group he termed the *self-aggrandizing* drinker. This is a form of ambition without energy. Such individuals have a craving for power and ascendance in a very primitive, undeveloped form, characterized by weak will power. When more or less intoxicated, they feel important and at ease. A fifth group, according to Jellinek,[5] should be added to complete this descriptive classification of the true addicts, namely, the *pov-*

erty drinker. Such persons are the "down-and-out Bowery bums," unemployed, unemployable, without hope or ambition, whose sole gratification in existence is drunkenness.

Still another group might be termed *social* or *gregarious* drinkers. Here are classified the easy-going and rather unsophisticated individuals for whom drinking is a form of relaxation—the high-pressure salesman who uses drinking to promote business and falls a victim of his own methods; the social, compensating drinkers who are possessed of inferiority feelings of which they are more or less conscious, and who become chronic alcoholics while deliberately attempting to overcome a felt social inadequacy; and the occupational drinkers who are employed in the breweries, distilleries, barrooms, and the like, where there is a constant exposure to alcoholic beverages to which they fall victim.

Phases in the drinking habits of alcoholics

That there is no clear-cut personality structure which characterizes any considerable number of drinkers should be clear. It is possible to describe the developmental pattern of addiction in terms of a survey carried out by Alcoholics Anonymous among its members. From this survey Jellinek [6] formulated a composite picture of the development of an alcoholic addict.

Of the drinking histories that were analyzed, only 10 per cent began with solitary drinking, the majority started with "liquor parties" or "week-end drunks." Usually by age 25 excessive drinking habits had been established. By this time, the subject had already started to have "blackouts" (memory blanks for the period of the intoxication). This phenomenon seemed to be an omen of chronic alcoholism since it occurred but rarely among moderate drinkers. At the time of the blackouts, or soon thereafter the subject began "sneaking drinks." Two or three years after the first of the blackouts, the subject was practically always drinking more than he had intended. He may have wanted only a couple of drinks, but "wound up cockeyed." This situation was a crucial point in the alcoholism. Whereas he had not previously felt dependent on alcohol, he now found himself unable to stop drinking, once he had started. Approximately two years after this, rationalizations for excessive drinking became common. He convinced himself that he had a perfectly good reason to get drunk. Morning drinking then started. After one to three years more (about age 33) "benders" (staying drunk for at least two days) made their appearance. The benders constitute the acute form of the compulsive phase of alcoholism. Later there was a trend toward social isolation, as expressed in solitary drinking and anti-

social acts. About two years after the benders started he began to react in an unreasonable, resentful way to anything that did not agree entirely with his wishes. He no longer felt remorseful over his conduct. Later, extreme anxiety, with the physical concomitant of tremors, gave him renewed incentive to becoming intoxicated. The cycles of drinking came closer and closer together. This behavior constituted the chronic form of the compulsive phase. The rationalization system which he had previously used to excuse himself collapsed and he reached his "lowest point" some 12 to 18 years after he had started. The lowest point is that at which Alcoholics Anonymous seems to be most effective.

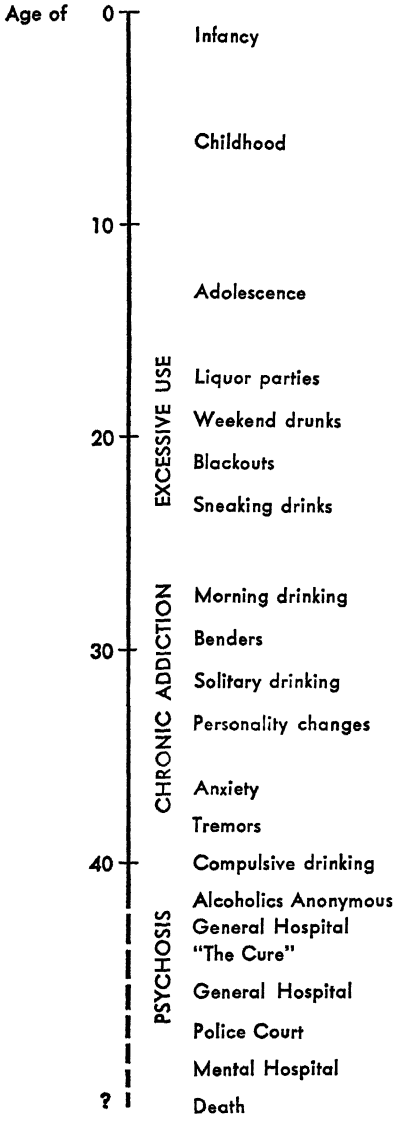


Fig. 12. The drinking history of the chronic alcoholic.

Role of social factors in alcoholism

Social factors contributing to alcoholic addiction or chronic alcoholism have long been stressed by reformers and have received some attention from scientific investigators. Poverty is frequently blamed, but its effect has been greatly overrated since there is no evidence which would indicate any true correlation between poverty, as such, and the consumption of alcohol. Unemployment, long working hours, and inadequate opportunities for recreation and leisure have all been advertised as factors leading to chronic alcoholism. Perhaps these may be contributing factors to the picture, but it is most doubtful that they are of basic importance. The general attitude of the community toward alcohol is a major factor in determining the differences in frequency of alcoholism in

men and in women. Different nations show a wide variation in the male-female ratio of inebriety. In the United States the ratio is approximately six men to one woman; in England, two to one; in Switzerland, twelve to one; and in Norway, twenty-three to one. This national variation, as well as the consistent and universal excess of men inebriates in contrast to women, can be attributed in part—though not entirely—to the prevailing attitude of the community. Much more tolerance, many more excuses, and much less condemnation are extended in American and western European cultures to men who drink to excess than to women. In most social groups a man may become drunk without any particular social stigma, but a woman who is known to drink to excess loses social standing and meets with very severe disapproval. The social attitude toward drinking among men has been termed by Myerson [14] *social ambivalence*. He pointed out how society on one hand praises drinking, including it in social and religious customs, and as a sign of good fellowship; and on the other hand regards with mixed contempt and amusement the drunken man. Society does not extend this ambivalent attitude to women—only contempt and scorn tempered but slightly with pity, expresses the attitude, conscious or unconscious, of our society toward the woman who is alcoholic. This is not intended to be a statement of morals, but a description of the basic attitude of present-day society.

Therapeutic outcome

Alcoholics are very difficult to cure by any method of treatment. The alcoholic either with or without psychosis, usually makes a recovery or remission of sorts, but all investigators agree that the majority of recoveries are temporary. The conditioned response method of developing an aversion by coupling drinking with an emetic has given positive results which last several years in as high as 40 per cent of cases treated. But generally speaking neither the conditioned response method nor any other method including psychotherapy is successful in keeping more than a third of treated cases "dry," for two years or more.

The method of group therapy used by Alcoholics Anonymous will be taken up in Chapter 32.

Alcoholic psychoses

In addition to chronic alcoholics and the alcoholic addicts, there is a fairly large group (5713 in 1946) of patients with alcoholic psychoses

among first-admissions to American mental hospitals. Certain of these psychopathological states are believed to be due to a direct effect of alcohol on the brain. Since only a small proportion of drinkers develop alcoholic psychoses, it is usually held that psychotic drinkers become psychotic because of some underlying factor, such as infection, injury, nutritional imbalance, or genetic predisposition. Most alcoholic psychotics are admitted for the first time to mental hospitals when they are between the ages of 30 and 60 years and have been drinking to excess for 15 to 20 years. It is estimated that there are between 9000 and 10,000 persons being treated in institutions of the United States for alcoholism at the present time, and of these, about half are suffering from an alcoholic psychosis. According to present expectancy, 3 of every 1000 children born alive will spend some part of their lives in a state hospital because of an alcoholic psychosis.[10, 11]

That there is a wide variation in the incidence of the alcoholic psychoses among the various national and racial groups as they come to the mental hospitals is shown in Table 4.

Table 4. First-admission rates for alcoholic psychosis of those born in various foreign nations and American-born Negroes per 100,000 of the same nationality in New York state hospitals, 1929–1931. (Not Standardized for Age) [10]

Nationality	*First-Admission Rate*
Irish	25.6
Scandinavian	7.8
Italian	4.8
English	4.3
German	3.8
Jews of all nationalities	0.5
Negroes (American-born)	107.5

The reasons for this wide variation among those of different national or racial origin are a matter of debate. Social factors such as the attitude of the group toward alcoholic indulgence, differences in economic status which may favor or disfavor the admission to public institutions, and possible genetic variations in susceptibility have been put forward as explanations.

The contrast between the occurrence of alcoholism or alcoholic psychosis among Jews and Irish is one which has been verified many times. The usual explanations for the lower rate among the Jews are the feeling of a need for group protection, parental attitude toward drinking, and a preference for beverages of low alcoholic content. Glad [4] tested these three hypotheses and concluded that the divergent rates of inebriety were explainable in terms of their differences in attitude toward the purpose of drinking. The Jews regard the function of drinking as an instrument to attain goals remote from the effects of alcohol *per se* (as socially practical or

religiously symbolic and communicative). The Irish on the other hand regard the physiological and psychological effects of alcohol as of primary importance (as a promotion of fun and pleasure and as conviviality). There is no explanation which has been systematically worked out which accounts for the extremely high rate among American-born Negroes.

Varieties of alcoholic psychoses

The diagnostic classification of the various forms of alcoholic psychoses is given in Table 5. This tabulation is based on 675 first-admission patients with alcoholic psychoses in New York State in 1943–44.

Table 5. Percentage distribution of alcoholic psychoses in first-admission patients, New York state hospitals, 1943–1944 [11]

	Percentage of All Alcoholic Psychoses
Pathological intoxication	10.2
Delirium tremens	16.7
Korsakoff's psychosis	12.0
Alcoholic hallucinosis	24.0
Chronic alcoholic deterioration with psychosis	15.4
Alcoholic paranoid states	6.8
Others	14.9
Total	100.0

Pathological intoxication

This is a form of acute reaction to alcohol which is distinguished from ordinary drunkenness on a qualitative rather than a quantitative basis. The outstanding characteristics of the condition are blind rage and confusion with complete amnesia on recovery. The reaction is not directly proportional to the amount of alcohol consumed, since it is sometimes brought about by taking relatively small quantities of alcohol. During the rage or excited delusional state it is not uncommon that crimes of violence are attempted. Binswanger [1] found that of 174 patients of this variety, 26 had been charged with offenses or crimes, such as threats, manslaughter, attempted murder, arson, burglary, or sexual assault. The condition may occur in normal persons whose tolerance to alcohol is temporarily lowered by overfatigue, prolonged exposure to heat, or emotional stress; but it is more common in physically inferior and emotionally unstable persons with a low resistance to alcohol.

This peculiarity of behavior may be illustrated by the case of a plumber who was usually regarded as eccentric but harmless. On occasion he would become depressed and grouchy. In such a mood he would go to a barroom

and drink one or two glasses of whiskey. He would then suddenly beat his fist on the bar and declare that he could whip any man in the room, any man in town, any man in the world. He would shout that he was all-powerful, and if any bystander made a harmless gesture or remark he would misinterpret it as a contradiction and would become assaultive. He would throw bottles or glasses, and once in his rage he attempted suicide by slashing himself with broken glass. When the police would take him to jail, he would quickly fall into a deep sleep from which he would awake with no memory whatsoever of the entire episode.

Delirium tremens

This disorder was first described and named by Thomas Sutton in 1813. These patients, usually after a prolonged drinking bout, became anxious, restless, fearful, have headaches, vertigo, and often have convulsions. They are disturbed by visual hallucinations in which unpleasant objects are seen, which change in size, form, and color. These objects are usually fast-moving animals, such as white mice, dogs, insects, snakes, and even pink elephants. There is also spatial and temporal disorientation; the patients believe that the hospital is a tavern, palace, or church, or that they are living in some past time, or they mistake the doctors and nurses for childhood friends or school acquaintances. They are very suggestible. They can be induced to read from a blank piece of paper or interpret spots on the wall as pictures according to suggestions. Immediate memory and learning ability are greatly impaired, but remote memory does not seem to suffer.

This condition rarely lasts longer than four or five days, after which the excitement gives way to deep sleep. When the patient awakens, he feels rested and has but few symptoms such as tremor and impaired memory remaining. Many of those who go through an attack of delirium tremens do not resume heavy drinking for two or three months because they are frightened, but most of them eventually return to their former habits. Since there is no immunity, they sooner or later return to the hospital with a new attack. Delirium tremens seems to develop mainly in those who are of healthy, normal family stock. They have an extraordinarily high tolerance for alcohol and can drink heavily for many years without any marked ill effects. Consequently, they believe they can continue to drink heavily with impunity. Their resistance is suddenly broken, often by the strain of disease or injury, and the violent reactions of delirium tremens follow. Formerly there was a rather high death rate, but modern medical treatment has reduced this to 4 or 5 per cent.

Korsakoff's psychosis

In this condition the chronic alcoholic seems to struggle to fill the gaps in his memory to an extent that his whole conduct and mode of expression are disordered by these efforts. The disorder was first described by the Russian psychiatrist, Korsakoff, in 1887. His description of the early stages of the disease is as follows:

"In the beginning it is difficult to notice any mental disturbance in conversation with this patient. He gives the impression of a person who has command of his mental capacity; he speaks with deliberation, draws the proper conclusions from given premises, plays chess or cards; in brief he comports himself as a mentally normal person. Only after a long conversation can one notice that the patient mixes up events and does not keep in mind things which happen around him. He does not, for instance, remember whether he has eaten or whether he has gotten up from bed. Sometimes the patient forgets immediately what has happened. One may have visited him and left him for a minute and on returning, he has not the least idea that one has been there before. Such patients may look at one and the same page for hours because what they have read does not remain in their memory. They may repeat the same thing twenty times without being aware of the repetition. . . . The patient does not remember persons with whom he is in continual contact. He does not remember his attending physician or the nurses, and assures one every time that it is the first meeting. It is remarkable, however, that these patients who forget everything that has just happened are usually able to recall events which happened before their illness. Everything that happens during the illness or shortly before it vanishes from their memory. This, however, is the rule in the more typical cases only. In others remote memory is also lost." *

Such patients tend increasingly to fill in gaps in their reminiscences with odd snatches from events which are occurring in their immediate surroundings. This tendency to bring together irrelevant and unconnected ideas and events is termed *confabulation* and is one of the most conspicuous features of the condition.

Many experimental studies [5] have been made on patients of this type. The general conclusion is that the memory disturbance is more apparent than real. The apparent memory loss is usually attributed to the inability to form new associations. This inability makes it difficult to find relations between past and present experiences or to distinguish between them. The examination of the brains of persons who have died in the course of Korsakoff's psychosis has revealed no gross organic damage.

* S. Korsakoff, quoted from E. M. Jellinek, *Alcoholic Addiction and Chronic Alcoholism.* New Haven, Yale University Press, 1942, 129.

Alcoholic hallucinosis and alcoholic paranoid states

These two conditions constitute about 30 per cent of the alcoholic psychoses. So far as hallucinations and delusions are concerned, they are similar to those shown in schizophrenia and paranoia. However, they occur in inebriates only after many years of heavy drinking. It is possible that such persons possess the latent possibility of these psychoses which continued inebriety finally brings out. In the alcoholic paranoid states there are ideas of persecution; in alcoholic hallucinosis there is a rather sudden onset in which the main symptoms are auditory hallucinations. The voices which are heard are usually identified as coming from some definite person. At the beginning the voices make simple statements. Later they become reproachful and criticizing. In many instances the hallucinations are heard as conversations of a number of persons talking about the patient in the third person. Although visual hallucinations commonly occur, they play a smaller role in the psychopathology than do the voices. Suicidal attempts and attempts at self-injury are often the result of directions received through the hallucinations.

Chronic alcoholic deterioration

The continued use of excessive amounts of alcohol over a long period of time may produce a characteristic physical and mental disorder. Bleuler provided the following description of chronic alcoholic deterioration:

"In the psychological field there is ethical degeneration, dulling of the finer sentiments, and brutality. This is the picture usually given, but it is not quite true. The originally decent alcoholic remains attached to his club and is very sympathetic with the misfortunes of his fellow men. He can become enthusiastic about ethical aims. He not only expresses himself with fine sentiments but may really experience them. If he is an artist he may create works which are expressions of fine sentiments, ethic and tact. Nevertheless the descriptions of his brutality and impulsive actions are not without foundation, for he does behave brutally in the presence of affects and under certain conditions. This is especially likely to occur at home, where he is subject to the overt or implied reproaches of the family; or at work, in which he cannot persist, or whenever a difference of opinion arises. The fact that these alcoholics, when the occasion arises, have at their disposal the most beautiful sentiments, and actually genuine ones, makes them especially dangerous, because they do not dissimulate these feelings.

The most important change of the affects and sentiments of the chronic alcoholics is their lability. With this is coupled a great affect tone to all experience which makes the affect master over the will and common sense. This lability of

affect makes consistent goal-behavior impossible. Will power is markedly diminished. The euphoric attitude makes it possible to perceive misery as something good, or, at least, not very bad. The exaggerated ego reference forms the basis of the suspiciousness of the alcoholic. The memory is impaired. Much of the behavior is dependent on the oblique position of the alcoholic toward his surroundings. In spite of his aggressiveness it is easily seen that he is actually on the defensive in relation to those who do not indulge in alcohol. Orientation remains intact in the uncomplicated cases. Jealousy is a frequent manifestation." *

Trends in alcoholism and alcoholic psychoses

There have been numerous statements in recent years claiming that there has been an increase in alcoholism, particularly among younger people and among women. An evaluation of these statements in terms of available statistical evidence was made by Jellinek.[7] He found that the average individual consumption of alcoholic beverages rose steadily during the years of World War II (1940–45) but did not reach the level which was common before 1920. The rise in consumption between 1940 and 1945 was due to an increase of 35 per cent in the number of consumers, while individual consumption remained the same. Between 1850 and 1945 the individual consumption of distilled spirits has decreased by 53 per cent while that of beer has increased 862 per cent. From this it may be inferred that there has been a real decrease in the proportion of "hard drinkers" and an increase in the "temperate" use of alcoholic beverages. During World War II the female rate increased by 12.6 per cent while the male rate increased 22.6 per cent. In spite of these increases neither rate was as high as they were during World War I, 1914–18.

The trend between 1889 and 1943 of first-admission patients, in whom the use of alcohol is listed as the principal etiological factor, is shown in Figure 13. Evidently, reports of intemperance as related to psychosis vary widely from year to year. Although the curve shows such a regular wave-like form, these waves are not related temporally to any of the more obvious social or economic changes, such as prosperity or depression, war, or prohibition legislation. In fact, the real cause of the variation is obscure.

In view of all evidence, the hypothesis may be advanced that the rises and falls in rates of incidence, both for addiction and alcoholic psychosis, differences between ethnic groups such as Jews and Irish, and between the sexes, are mainly a function of social permissiveness. There may be a constitutionally determined predisposition to succumb to alcoholism. The proportion of the population who have this susceptibility remains fairly

* E. Bleuler, quoted from E. M. Jellinek, *ibid.*, 146–147.

constant. If social approval or disapproval of the use of alcoholic beverages, as well as the kind of beverage with respect to alcoholic content, waxes and wanes, then the number who are predisposed will be encouraged or discouraged in the use and consequent resulting addiction, so giving rise to the cyclic changes in rates of incidence.

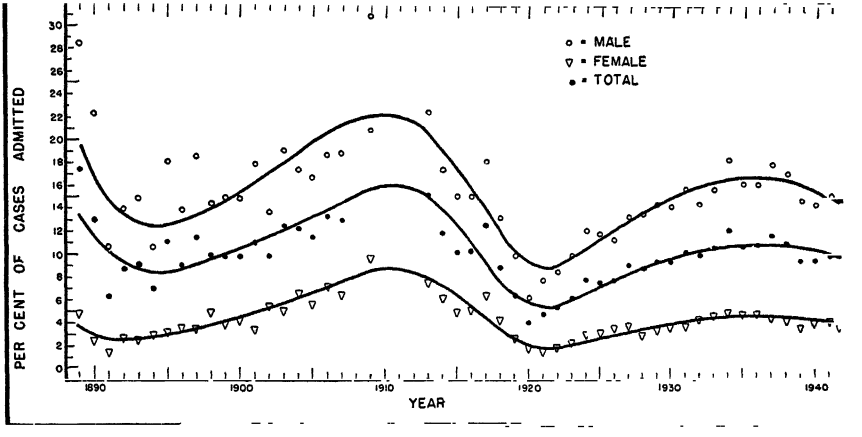


Fig. 13. The trend of the percentage of patients admitted to all New York State mental hospitals, 1889–1943, male, female, and total, for whom it was stated that the intemperate use of alcohol was the principal "cause" or precipitating factor leading to hospitalization.[9]

Summary

There is no single explanation of alcoholism and the alcoholic psychoses. Constitutional, environmental, and personality factors interact, but no one of them can be legitimately termed "the cause." Alcoholism occurs with, as well as without, other evidence of psychopathology and in all personality types. There is evidence that alcoholism frequently occurs in family stocks in which other mental deviations are present. Social and environmental factors operate to increase or decrease the rate of incidence as evidenced by the differences between the Jews and the Irish or between men and women.

Personality studies on confirmed alcoholics have established certain common characteristics but many, if not all, of these appear to be secondary manifestations of the alcoholism. The drinking histories of addicts show many similarities in the course of the development of acute alcoholism.

The psychoanalytic explanations which have attempted to go deeper into personality structure than any other type of investigation have not shed too much light on the problem. This is due to the fact that relatively few

alcoholics have been studied by the analytic method and also that there are widely divergent kinds of alcoholic persons.

In brief, there is no single explanation of alcoholism. Indeed, there is no systematic viewpoint which will include any large fraction of the alcoholic cases. If there is any human disorder which can be truly said to be of multiple etiology, it is alcoholism in all its diverse forms.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 16 *Epilepsy*

NO OTHER AFFLICTION IS SO COMPLETELY ILLUSTRATIVE OF THE ESSENtial problem and scope of abnormal psychology as is epilepsy. It is a disease of record since 400 B.C. Epileptic seizures have been witnessed by most of the world's population. It has been a matter of practical concern by men of all sorts throughout history. The problem has been "solved" by physicians, theologians, kings, magicians, chemists, scientists, and philosophers. Dr. Oliver Wendell Holmes once wrote: "If I wished to show a student the difficulties of getting at truth from medical experience, I would give him the history of epilepsy to read." [2]

The individual suffering from epilepsy shows with startling clarity the essential problems of all varieties of psychopathological patients. He falls in a convulsive seizure through no known cause or fault of his own. (He is ill and does not know why.) Such seizures are witnessed in fascinated horror by bystanders, who feel impelled to help and are at the same time fearful and distrustful. (The healthy have morbid curiosity plus fear of those who are mentally ill.) The epileptic is barred from many schools, from many jobs, in many states he may not drive a car or work around machinery. (Mental patients are segregated.) Although of normal intelligence there is the possibility that a process of mental deterioration may set in and lead to complete dementia. (Everyone dreads being "crazy.") Fortunately the last twenty years have seen more progress in the recognition, diagnosis, and therapy of epilepsy than occurred in all previous history, so again the disease is illustrative of the positive results coming from the application of the scientific method to an ancient human problem. (Hope grows out of progress of medical science.)

Epilepsy has been known by many names; "the falling sickness," "the sacred disease," "fits," "convulsions," "seizures," and more recently as "cerebral dysrhythmia." [14]

Anyone seeing an epileptic seizure for the first time will be both startled and alarmed. The sudden onset of convulsions in a person who was a moment before in apparently perfect health is both appalling and mystifying. The different interpretations of the condition which have been made in ancient and medieval times and the social stigma which still attaches itself

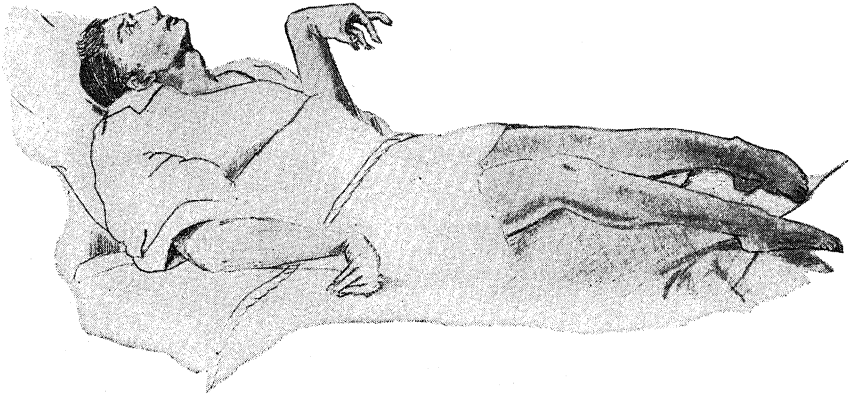


Fig. 14. Posture during the tonic phase of the *grand mal* seizure.

to the condition are more understandable after one has observed an attack. A *grand mal* seizure usually occurs somewhat as follows: The patient's face becomes blank, the eyes take on a fixed stare, the extremities stiffen. With a hoarse, weird cry, he falls to the floor forcibly. The rigid, tense muscular spasm gives way to a series of violent jerks, so that both sides of the body are involved in waves of contraction and relaxation. The jerks and twitches may last for several minutes. During the tense phase, respiration may be temporarily interfered with, so that the patient's face becomes blue. Frothy saliva appears on the lips. The jerking movements of the jaw often produce injuries to the tongue. There may be involuntary urination and defecation. From two to ten minutes after the beginning of the attack, the patient passes into a state of deep sleep or coma, which may last a variable length of time ranging from minutes to hours.

Case history

The following description illustrates the course of the life development of a typical epileptic girl:

CASE **23:** Miss E, aged twenty-two, came from a home of American-born, Protestant parents of moderate financial means. The father died when she was

eight years old and her mother had to take up daily work outside the home to support the four children. The mother was fairly strict with the children and had little time to show them affection. The first seizure occurred on an open street when she was thirteen, soon after menstruation started. She refused to let her mother take her to the doctor. Attacks occurred at rare intervals until she was seventeen years old, and then they became more frequent and severe. She finally went to see a doctor and the medication which he administered decreased the number of *grand mal* attacks to about one a month. However, she had daily slight attacks (*petit mal*). She never had any warning (aura) of either the *petit mal* or *grand mal* attacks. The frequency and severity of the seizures caused her to discontinue her education in the third year of high school and from that time on she seldom left the house. She had few girl friends in childhood and adolescence, spending a great deal of her time reading.

She wanted to go out with boys when she was sixteen years old but her mother would not let her. From the time she was eighteen she went out with boys occasionally and became fond of one boy in particular. Her desires for the future centered around being married and having a home of her own. She had never been very religious and did not feel that religion had influenced her attitudes or beliefs to any great extent, except that it at times cheered her up when she felt discouraged and depressed. These disconsolate moments occurred when she worried about her "spells" or about the fact that she could not get a job. Sometimes she felt that she did not care what happened to her and that she would be better off dead. She reported that at times she was irritable at home and became upset and annoyed at little things.

In general, this girl was shy and retiring, had few social contacts outside the home, and made little effort toward getting any vocational training or placement. She was extremely discouraged, feeling that her attacks made gainful employment unlikely. Since she had never given up the desire to carry on a normal life, the feeling of frustration gave her many "bad moments." *

Types of seizures

The *grand mal* or generalized seizure described previously is the most severe form of epilepsy. The pattern of the seizure is by no means the same in all cases, or even in the same case at different times. The hoarse cry, frothing of saliva, involuntary urination and defecation may or may not be present in the *grand mal* attack. Constant features are the sudden complete loss of consciousness, the muscular convulsion, the coma after the attack, and the slow return to consciousness, like one awakening from a deep sleep. The attacks may occur during the day or at night (during sleep).

* Modified from C. Landis and M. M. Bolles, *The Personality and Sexuality of the Physically Handicapped Woman.* New York. Hoeber. 1942, 68–69

The *petit mal* attack is usually said to be more frequent than the *grand mal* seizure. These attacks consist of momentary lapses of consciousness, together with disturbances in expression and with momentary suspension of activity, which may be so brief as to be barely perceptible to the observer or which may last ten or twenty seconds. They are blank spots in the stream of consciousness and behavior, after which normal activity is resumed as though nothing had happened. In some, these attacks are more severe; the head may drop forward and slight twitchings of the muscles may occur. In other individuals a *petit mal* attack may on occasion develop into a generalized, *grand mal* attack. *Petit mal* attacks are relatively more common during adolescence. When present, they occur much more frequently than *grand mal* seizures, so that an individual may have from one to a hundred or more such "lapses" every day. So long as an individual has only *petit mal* attacks, there is little, if any, mental impairment.

The third type of attack is the *Jacksonian seizure*. This is characterized by a convulsion of some part of the body, usually an arm or a leg. There is no loss of consciousness during the attack, although there is a loss of voluntary control over the convulsing member of the body. Jacksonian attacks sometimes spread or change into generalized, *grand mal* seizures.

Psychic seizures (psychic equivalents, psychomotor seizures) are difficult to describe since the attack differs in its expression in each patient. There is a disturbance of consciousness and there may be no memory for the attack, although he acts and even speaks as if more or less conscious. He may mumble incoherently, get up and walk, gesticulate, chew or grind his teeth, attempt to take off or put on his clothing. He may answer questions in a confused fashion. He may walk, sometimes for long distances. Usually, such an attack lasts only a few minutes, but it may go on for hours or even days. In such a prolonged attack the person may find himself in a new, strange place when he recovers consciousness. Some of these individuals act as though they were in an irritable, ugly intoxication and fight violently if restrained. Others have been known to commit crimes of violence during such a seizure. Since in any one person each successive attack is somewhat similar to its predecessor, measures can be taken to prevent possible injury to the patient or to others.

Some "behavior-problem" children are, in reality, suffering from psychic seizures. They are destructive, irritable, hostile, and assaultive. They have fits of temper, run away, or have spells of meanness; but between these episodes they display a good disposition and normal behavior. By no means all behavior-problem children suffer from psychic seizures. It is usually possible

to distinguish such children from other behavior problems on the basis of their electroencephalograms (which will be discussed later in this chapter).

Somewhat more than one half of the group of persons who have *grand mal* attacks have an *aura* or warning which is part of the approaching seizure. (Aura is Greek for "breeze," that is, the breeze before the storm.) This initial symptom occurs from one to ten or fifteen seconds before the convulsions or loss of consciousness. Such a patient may be fortunate enough to have time between the aura and the seizure to lie down or to seek seclusion. The nature of the aura varies widely in different individuals. Sometimes peculiar sensations are felt in the pit of the stomach; other cases develop dizziness, or numbness and tingling of the feet or hands. Still other persons report peculiar sensations in their muscles, head, eyes, mouth, or throat. The particular kind of aura experienced seems to be characteristic of that individual. For many years the aura has been recognized as the beginning of the seizure, and not its cause. Neurosurgeons have shown that the aura can be experimentally produced by the direct stimulation of the brain cortex in certain appropriate areas.[10]

Another grouping of the types of convulsive seizures is based on the three general conditions under which they usually occur. Convulsive seizures may be associated (*a*) with organic injury of the brain, (*b*) with acute fever or intoxication, or (*c*) they may be idiopathic, meaning that they are not regularly associated with any known cause.

There is no lesion or injury of the brain that will inevitably produce epilepsy, and there is hardly any lesion or injury that has not "caused" epilepsy. Various surveys [15] indicate that at least 35 per cent of persons having penetrating head injuries have epileptic seizures which begin from a week to several years after the injury. In some persons having convulsive seizures, there is a demonstrable cerebral lesion, such as degeneration of brain tissue, tumorous growth, or scar tissue. In these cases the cerebral pathology may be termed the basic cause which, under certain conditions of stimulation, results in convulsive phenomena.

In certain cases of epilepsy which are without demonstrable cerebral lesion there is some other factor, such as very low blood sugar level, a bodily toxicity, or a cardiac insufficiency, which causes changes in the condition of the brain, thus producing convulsions. In the third group, the idiopathic condition, there is no known pathology of the brain (or of the brain physiology) to which the convulsions may be attributed. Hence, this latter group is referred to as "essential" or "true" epilepsy.

Facts and figures

On the basis of public health surveys, rejection for military service, and similar sources, the incidence of epilepsy in the general population has been estimated to be about 5 per 1000 persons, which means that there are more than 700,000 people so afflicted in the United States. Only a small percentage of all epileptics are institutionalized. (Over 23,000 were resident in mental institutions and over 3000 were first-admitted to mental hospitals in 1946.) It is believed that convulsive seizures afflict men and women with equal frequency.

It was found in a study of 1869 epileptics [5] that 60 per cent had only one type of seizure, 40 per cent had more than one type, and 2.5 per cent had three or more types. *Grand mal* attacks had occurred in 90 per cent of the patients, *petit mal* in 45 per cent, and psychic seizures in 8 per cent. Two thirds of those having *petit mal* seizures developed *grand mal* later in life.

Of nearly four million seizures recorded in one survey,[5] 71 per cent were *petit mal,* 26 per cent *grand mal,* and 3 per cent psychic seizures. Of patients having *grand mal,* the average annual number of seizures was 114; of those having *petit mal,* 573; and of those having psychic seizures, 217. Of 1567 patients who had *grand mal,* 25 per cent had less than 5 seizures a year, 50 per cent less than 15, 75 per cent less than 50, 2.2 per cent more than 1000 a year, and 0.4 per cent more than 5000. Generally speaking, as an epileptic grows older the attacks become less frequent, especially if they are of the *petit mal* type.

Most persons who have seizures experience their first one either during the first two years of life or during adolescence. The age at onset and the causes of seizures are shown schematically in Figure 15, which also gives some indication of the relative importance of factors which are thought to produce seizures.

Granting that the basic cause of epileptic seizures lies in some condition of the brain, what factors bring out or set off the convulsions? A distinction must be made between the factors which will produce convulsions in any human being, and those which will precipitate convulsions in persons predisposed or previously subject to seizures. Essentially anyone will have convulsions if given certain drugs, such as strychnine, absinth, or metrazol. Convulsions may also be produced in anyone by direct electrical stimulation of the brain, a deficiency of sugar in the blood, or by heart block (which produces sudden interference with the blood supply of the brain).

A wide range of factors may precipitate convulsions in persons who are

subject to seizures, either because of brain injury or hereditary predisposition. Most of these factors are thought to change the permeability of the cell walls of the neurons of the brain. This permeability relates to the ability of the brain cells to absorb water, sugar, mineral salts, and oxygen, from the blood stream and to excrete from the cell body into the blood stream

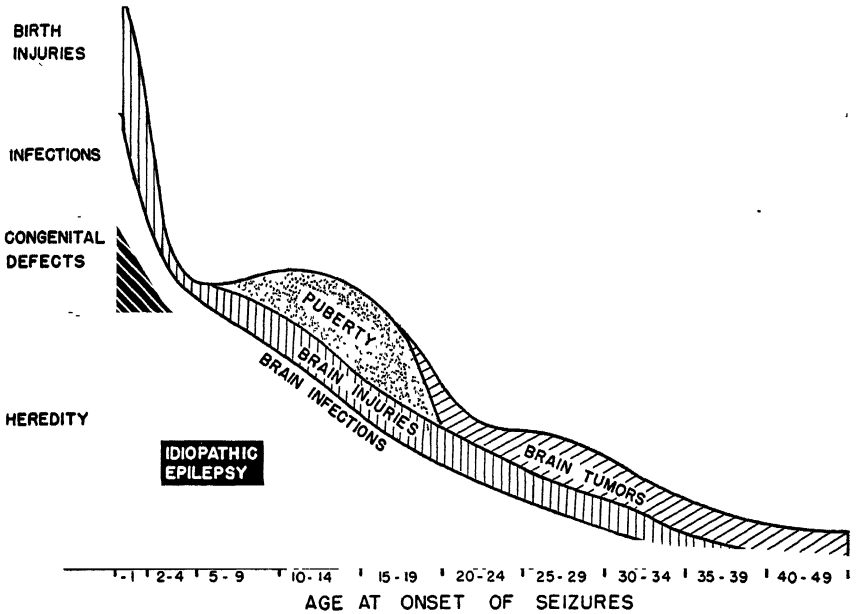


Fig. 15. Suggested causes of seizures which begin at various ages. (Modified from Lennox) [5]

carbon dioxide and other waste products. When there is an unbalanced relationship between the oxygen and carbon dioxide in or around the neurons of the brain cortex, there are periodic bursts of nerve impulses which manifest themselves as convulsions or as the lapses in *petit mal.* Forced breathing (hyperventilation leading to an oversupply of oxygen) may set off either *petit mal* or *grand mal* seizures.

For many years it has been known that the water balance of the body is related to the frequency of epileptic attacks. When a patient is relatively dehydrated, there are fewer seizures. Water deprivation has been used as a method of controlling the number of convulsions. This effect is believed to be due to the change in cell permeability which is related to the water content of the blood. Excessive liquid intake increases the number of seizures in the epileptic, but does not bring them on in the nonepileptic.

The frequency of attacks in epileptic patients has been found to be

related to a number of conditions. In epileptic women the seizures tend to be more frequent just before or during the menstrual period, due probably to the changes in water balance known to occur at this time. Alcohol, which also changes the water balance, has long been known to precipitate seizures. Patients who are free from attacks while taking some of the drugs which usually inhibit the convulsions will again have seizures after taking alcoholic beverages. Fatigue may precipitate seizures. Patients who spend most of their time resting in bed have definitely fewer convulsions than they would if they led an active life. Epileptic seizures may also be precipitated as part of the emotional responses of fear, anger, or excitement.

Physiology and pharmacology

Berger [3] in 1929 demonstrated that the pulsating variations in electrical potential of the brain itself could be recorded from electrodes attached to the scalp.[12] These electrodes are connected to suitable electronic amplification devices which amplify (magnify) about one million times the minute electrical changes of the brain which are picked up on the scalp. These amplified pulsations are led to a device which records the changes on a moving paper tape. These records are called "electroencephalograms" (EEG) or "brain wave records."

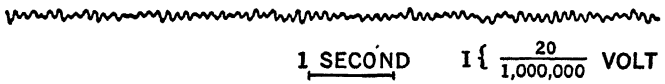
The EEG records obtained from persons afflicted with different types of epilepsy are distinct and furnish an objective basis for distinguishing between the varieties of seizures. Figure 16 illustrates certain types of EEG records. These records are used to indicate the hereditary potentiality for seizures, focal points of brain damage or injury due to infection or tumor, and an underlying organic basis of disorder in certain behavior-problem children. The EEG is not infallible, but it clearly corresponds to the clinical symptoms in 60 per cent of the cases and is indicative in an additional 20 per cent.[18]

The evidence afforded by the brain-wave records indicates that convulsions are based on an abnormal pattern of discharge of nerve impulses by the brain. This discharge may involve only a limited and well-defined area, or it may involve, so far as we know, the entire cerebral cortex. It may start at one point and spread, involving more and more of the cortex. Forced breathing or hyperventilation will often produce abnormal EEG patterns, characteristic of some form of epilepsy, both in persons who have had seizures and in those who have never had a seizure.

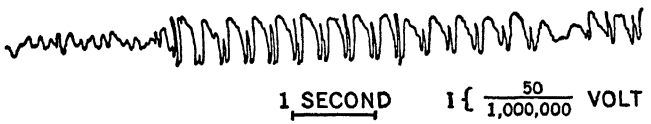
In some cases the EEG, together with other methods of neurological investigation, indicates that there is a "trigger" area of the brain from which

the seizure originates. If this area is located in a surgically accessible part of the brain, the neurosurgeon may be able to open the skull and excise the area in question, so relieving the patient of future convulsions.

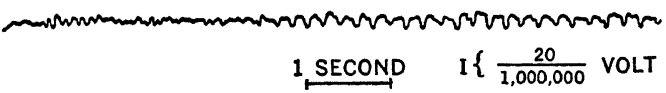
Various drugs are used in the medical treatment of epilepsy (Chapter 22). Which drug or combination of drugs will be most efficient in con-



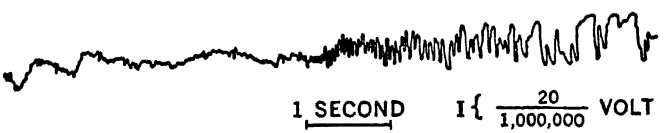
Typical EEG record from a normal person.



Type of record obtained during petit mal seizures.



Type of record obtained from an individual who suffers from psychic seizures.



EEG tracing obtained during grand mal seizure.

Fig. 16. Varieties of *EEG records.*[12]

trolling seizures must be determined by the physician for each particular case. It was formerly suggested that the prolonged administration of bromides to epileptics might have contributed to progressive mental deterioration in some cases. Investigations of this point have shown that deterioration was no more frequent among epileptics so treated with bromides than it was among those who did not have that form of medication.[9] The newer drugs, such as dilantin, have not been used long enough to be sure what their true relation to mental deterioration is, but medical opinion inclines to the belief that they retard or prevent deterioration.

Psychology

Certain personality traits, such as irritability, egotism, hypersensitivity, and emotional instability, have been said to characterize the epileptic. So much attention has been given to this pattern of temperament that it is

sometimes discussed as a distinct personality type. Some individuals who have never had seizures are therefore described as having an *epileptoid* personality.

The question of the existence of a typical epileptic personality is of importance if one looks to the psychological make-up for an explanation of the seizures, as is sometimes done in the case of idiopathic epilepsy where no known organic basis or cause has been found. The existence of the so-called epileptic personality traits without the occurrence of seizures has been sometimes called "latent epilepsy," implying that at some later time or under certain conditions the person may be subject to seizures.

Before it is justifiable to speak of an epileptoid personality, we must first make certain that such a pattern of psychological responses occurs frequently enough in persons having regular seizures to justify our speaking of a specific personality type. Personality studies [1] show that not all, or even any large percentage, of epileptic patients have an epileptic personality, as it has been described. Some individuals do show the irritable explosiveness said to characterize the epileptoid personality, but there is not a sufficient number of them to make it typical of the condition.

It is possible to study groups of true epileptics who have been suffering from seizures for various lengths of time and whose affliction started at different times in their life histories to see whether the illness together with its psychological and social consequences results in typical personality deviations. Such studies have been done more recently in two different ways: (*a*) using the Rorschach method of personality study and (*b*) making studies with intelligence tests to determine the pattern of intellectual deterioration.

Rorschach reported in 1921 that epileptics tended to give many color responses, tended to confabulate, to make judgments of value, to perseverate, and to be slow in making associations. Not all these signs were shown by all patients but these were basic tendencies in most patients. Some subsequent investigators agreed with Rorschach and some failed to do so. Piotrowski [11] made a new study of a group of carefully selected epileptic patients and concluded that they had many traits in common while still varying among themselves. In general he found that epileptics were slower in producing responses, gave very few human movement interpretations, exhibited an increase in color naming responses and a decrease in form responses as well as fewer popular responses together with a tendency to repeat the same response to several cards. He believes that these deviations from the normal's interpretations of the ink blots are evidence of the psycho-

logical defect resulting from the organic brain damage. They indicate "the secondary defense measures developed by the epileptics in order to compensate for the psychological disturbances caused by the disease." The amount of change in these Rorschach signs is partial evidence of the degree of intellectual deterioration.

An earlier descriptive study [8] of 150 epileptic patients indicated that there was a definite correlation between the age at onset of seizures and the type of personality reactions manifested in adult life. Only when the seizures had begun early in life was the so-called epileptic personality found, and then not in all cases. In those patients who were said to have "normal" personalities, the onset of seizures usually was after adolescence. These findings bear evidence that the peculiarities that were developed came about as a result of the seizures or of other factors going with the seizures, since they were not present before the onset of epilepsy. The so-called epileptic traits are really psychological reactions of the individual to the fact that he is afflicted with epilepsy. When the disease develops early in life, there is less chance for the development of a normal personality. Epileptic personality traits are mental reactions which are encouraged and determined by the social deprivation and home protection to which the patient is subjected. Most epileptics, before the onset of seizures, seem to have the usual variation of personality traits which are found in most human beings.

Although frequent convulsions may not affect the personality of different individuals in the same way, the problems of adjusting to having seizures might be expected to have some effect on personality formation. The epileptic individual has serious social and psychological problems to face. The fear of having attacks in public with the resulting personal embarrassment may lead the person to avoid most social gatherings. He does not wish to be an object of pity or revulsion and, in attempting to prevent others from knowing of his condition, he avoids making friends or acquaintances. His notion that others are repulsed, distrustful, or even afraid of him is not delusional in any sense; people do view the epileptic this way.

The epileptic who is highly sensitive to withdrawal reactions in others has a very real personal problem to meet. If he withdraws socially and is unable to work out any vocational or avocational adjustment, a vicious cycle of maladjustment will be set up. He may gradually make less and less effort to help and improve himself. Then the evidence of lack of accomplishment may convince him that his life is empty and hopeless, and that he is inferior and incapable of anything worth while. His interests and activities become more and more circumscribed and he becomes increasingly sensi-

tive to the reactions of others. He is aware of his failings but flies up in anger at even slight criticism. The pattern of egotism, hypersensitivity, and irritability shown by some of these cases is thus understandable.

Intellectual deterioration

In the minds of many persons the idea exists that epilepsy is practically always accompanied by mental deterioration or insanity. There is generally believed to be a progressive loss of intellectual acuity, a slowing of mental associations, and a definite memory loss in most cases. Those connected with institutions for epileptics are impressed by the frequency of mental deterioration among the patients. It should be remembered, however, that the hospitalized epileptics represent not more than 10 per cent of the total number of persons so afflicted, and those who are without mental deterioration are less apt to be institutionalized.

The analysis of standard intelligence tests applied to many different groups of epileptic patients usually has shown the average IQ of the epileptics is from 65 to 92, in contrast to similar nonepileptic groups whose average IQ is 100. However, these figures include the test performances of cases in which there was probably gross cerebral damage, cases having true mental defect, cases in which the disease has interfered with the usual course of education, and cases that grew up in environments which provided little stimulation or encouragement for intellectual activity.

In evaluating the mental changes in epileptics, the best method is to determine whether there are progressive mental losses in the same case as the affliction continues and as the person grows older. Although there are so far, no studies based on standard tests which have followed the same subjects over a long period of years, Lennox [5] has reported on the clinical observation of 1899 patients who had had convulsive seizures for a varying period of years. Figure 17 shows graphically his results. The decrease in the number of mentally normal patients with the passage of years is evident. It is interesting to note, however, that almost one half of the patients showed no mental loss even after twenty-five years. This survey together with scattered reports of actual "test-retest" studies points out clearly that many individuals show no intellectual deterioration beyond that attendant on growing older, some individuals show more or less deterioration, and a few cases show clear, pronounced, and profound deterioration.

The course of the loss was described by MacCurdy [6] as follows: The deteriorating epileptic gives up the struggle to adjust and shows an increasing loss of interest which is accompanied by intellectual decay. He loses

spontaneity. When the energy output decreases there is poor attention, imperception, a failing in recollective memory, a restriction in mental content, together with a marked retardation in all mental operations. There is a difficulty in bringing words, memories, and ideas into consciousness. The material may not be lost since sufficient motivation may bring it to the surface. The deterioration may progress to mutism and profound dementia.

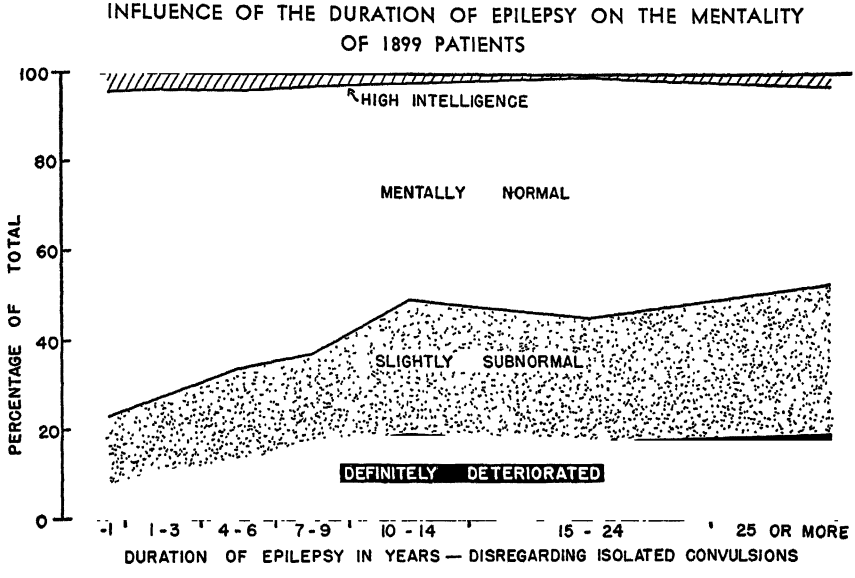


Fig. 17. Influence of the duration of epilepsy on the intellectual level. (Modified from Lennox) [5]

Such evidence as is available from the analysis of experimental studies [7] indicates that the most marked impairment occurs on tests of immediate memory, word usage, concentration, speed of association, and impaired concept formation.

Some have held that mental impairment is most apt to occur either in those cases with an early onset of seizures (between birth and age 3),[8] or in those who have had frequent and severe attacks. That these relationships are not too close is evident from Figure 16. Whenever the cause of the seizures is cerebral damage and this structural damage is of a progressive nature, a gradual loss in mental ability may be expected. From the amount of cerebral atrophy or damage found in the brain of many an epileptic patient, it is surprising that there is not more deterioration in mental ability in many instances than the record of the case indicates. However, as might be expected, organic damage and mental deterioration are more apt to be associated with *grand mal* than with *petit mal* seizures.

In general, the person who suffers from epileptic attacks should not assume that he has a condition in which all his mental abilities will gradually and inevitably be lost. With proper medical treatment and hygiene his attacks may be arrested or minimized and he probably will never show mental impairment.

Summary

Although convulsive seizures have been a human affliction for centuries, it is only recently that medical science has found the clinical and surgical means of alleviating the condition in many patients. Convulsive seizures are due to many causes, but there seem to be differing degrees of brain tissue resistance to the various factors which may give rise to convulsions. There is little evidence of an epileptic personality antedating the seizures. Rather, the problems of life adjustment of epileptic patients are fairly similar and the adjustment to those problems gives rise to certain common behavior patterns in some patients; namely, irritability, seclusiveness, and a self-protective egotism. That some epileptics show marked mental deterioration is true, but with proper medication and hygiene this deterioration can often be forestalled. At present somewhat less than one half of all epileptic patients give some evidence of deterioration, and that deterioration varies from slight to profound.

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Chapter 17 *Mental Deficiency*

MENTAL DEFICIENCY IS A FORM OF MENTAL ABNORMALITY CHARACTERized by limited intellectual capacity. It is not a disease in the sense that tuberculosis and measles are diseases. It is a symptom occurring in different degrees and arising from different causes. Mental deficiency is also called "feeble-mindedness," "amentia," "oligophrenia," "hypophrenia," "weakness of mind," or "idiocy." Essentially, it is a condition in which there is a limited capacity for mental development, as a result of which the person is unable during childhood or at maturity to maintain himself without outside help and supervision. The definition or delimitation of mental deficiency or any one of its synonyms is not the same in different countries. For example, in England the factor of social competence is the most important criterion, whereas in most of the United States an essential criterion is the intellectual status as shown on an intelligence examination. In England the terms *idiot, imbecile,* and *moron,* or *simpleton,* are related to the self-sufficiency of the individual, while in America these terms are applied to certain ranges on the intelligence quotient (IQ) scale. (The criticism has been made that there has been too much emphasis on social and intellectual inadequacy in the formulations of mental deficiency. It should rather be considered as a symptom associated with some constitutional disturbance which may be somewhat ameliorated under favorable circumstances.) [18]

There are different viewpoints which may be taken concerning the problem of feeble-mindedness. From the standpoint of education, we know that most children (or adults) reach certain standards of scholastic proficiency, a few are exceptionally intelligent, and a few are exceptionally dull. Standard intelligence tests have been well defined as measures of school aptitude. In this sense it may be said that the ament has little or no aptitude for school subjects. From a biological standpoint, the essential requirement of any

living creature is its capacity for maintaining its own existence. Mental deficiency is, then, an incomplete mental development of such degree that the individual is biologically inadequate; he is incapable of adapting himself to the normal social environment in a fashion which will enable him to maintain his own existence independent of supervision, control, or external support. In England the legal definition (1927) states, "Mental defectiveness means a condition of arrested or incomplete development of mind existing before the age of eighteen years, whether arising from inherent causes or induced by disease or injury." [22] This legal definition is, in practice, the one accepted in most American courts, although some states add an educational qualification or proof in terms of an intelligence examination.

Facts and figures

How many mental defectives are there in the United States? The answer to this question cannot be given in a simple figure for two principal reasons. First, mental deficiency varies in degree and the number of individuals who are classified as defective depends on where the dividing point between normal and defective is established. Since various investigators have used different figures on the IQ scale as the division point, it is necessary to state this point of reference whenever any comparisons are made. For example, an IQ level of 60, 70, 75 or some other level may have been used as the dividing line. Second, if the individual is industrious, amiable, cooperative, and not too low in intelligence he can, with supervision, get along in society and, hence, will be called "dull" or "stupid," but not a "mental defective."

During World War I the Army Alpha intelligence test was given to over 1,500,000 drafted men.[27] Those who did poorly on the Alpha (over 400,000 men) were given the performance test, Beta; and, of these, over 80,000 were given individual intelligence tests. On the basis of these examinations, together with all other relevant information, 0.5 per cent of the white draftees were recommended for discharge because of mental inferiority; 0.6 per cent were recommended for assignment to labor battalions because of low-grade intelligence; and another 0.6 per cent were assigned to development battalions for the same reason. In brief, 1 man out of 200 drafted was so intellectually retarded that the army could make no use of him, and 12 out of 1000 were so retarded that labor or development battalion service was recommended. The percentage of those already in institutions and of those rejected by local draft boards (0.9 per cent) must be added to the 0.5 per cent recommended for discharge. Hence, 1.4 per cent of the white male population of draft age were of such defective intelligence that they could

not be utilized by the army. (The comparable figure for the Negro draft was 1.9 per cent.)

In World War II, 4.5 per cent of all men examined were rejected because of mental deficiency.[4] However, the figure includes many illiterates and possibly some psychotics so it is not too meaningful nor is it comparable to the World War I figure.

In 1931 the National Committee for Mental Hygiene made a summary of surveys [14] conducted in various parts of the United States between 1919 and 1924. This survey indicated that of 52,514 school children tested, 3.2 per cent were mentally defective and 3.7 per cent were borderline mental defectives. One survey of an entire population of a portion of Baltimore reported that 1.2 per cent were mentally deficient.

The total American population of about 150 million persons includes approximately two million mental defectives who are totally dependent or nearly so because of their defect. In addition, there are more than seven million persons who possess only borderline intellect, and who can care for themselves only under favorable circumstances and with some supervision and guidance. Approximately ninety thousand of these defectives are being cared for in institutions for the feeble-minded. How many more are in correctional institutions, almshouses, and the like, is impossible to ascertain.

Table 6. First-admissions to all U. S. institutions with a diagnosis of mental deficiency in 1946

		MENTAL LEVEL			
	Number	*Per cent idiot*	*Per cent imbecile*	*Per cent moron*	*Per cent unascertained*
Male	5339	16.7	29.2	42.6	11.6
Female	3891	15.7	31.4	41.8	11.1
Total	9230	16.3	30.1	42.3	11.4

Table 6 shows the relative frequency of the degrees of mental deficiency in terms of institutionalization. It must be remembered that even though in this tabulation the percentage of morons is considerably higher than the percentage of idiots or imbeciles, in actuality the percentages are not representative of the situation in the general population. Morons greatly outnumber idiots, but not nearly so many morons must be hospitalized. The table also shows that there are many more males than females admitted; a fact which has been regularly reported in many statistical surveys. Several interpretations have been made on this point.[21] It has been pointed out that boys are slightly larger than girls at birth and for this reason are more apt to sustain birth injuries. Families are more reluctant to institutionalize girls, and have more difficulty in handling mentally defective boys (of the moron level)

since they are more apt to get into social conflicts. A technical characteristic of intelligence tests applied to low level groups results in lower scores for boys than for girls. No final answer can be made as to whether there are more feeble-minded males than females but if there is an excess of males the excess is not a large one.

Varieties

Mental deficiency occurs in different forms and degrees. Usually, aments are classified according to the assumed cause or on the basis of the degree of their intellectual defect. Familial (endogenous, or idiopathic) mental deficiency constitutes more than 75 per cent of the total. The remaining 25 per cent are constituted by mongolian idiocy, cerebral spastic paralysis, postinfectional or posttraumatic retardation cases and other rare forms. Another system of classification distinguishes between primary amentia and secondary amentia. "Primary amentia" is applied to all kinds of mental defect in which the cause is thought to be inherent, intrinsic, or endogenous; that is, hereditary. "Secondary amentia" refers to those cases which result from some adverse factor in the environment acting upon the individual at any stage of development from the time of conception to the end of adolescence. Since there is no involvement of the germ cells, secondary amentia is not transmissible from one generation to the next. The classification that is now recommended by many authorities is that of "endogenous" and "exogenous" groups. The endogenous group includes those cases which can be attributed to defective inheritance (the primary amentia of other classification systems). The exogenous group includes all other clinical varieties, the majority of which show neurological and anatomical deviations in addition to the mental defect.

Among the feeble-minded (IQ below 75) Tredgold [22] reports the mental levels as follows:

75 per cent	Moron	50–75 IQ
20	Imbecile	25–50 IQ
5	Idiot	Below 25 IQ

From the standpoint of abnormal psychology, the group whose IQ is between 75 and 85 (that is, borderline cases who can make their own way without too much help) may be disregarded. The stupid, dull group, with IQ's from 50 to 75, are usually classified as morons and do require care, supervision, and control for their own protection and for the protection of others. They also present a certain amount of psychopathology. They are

subnormal in their ability to control, coordinate, and adapt their conduct. Their educational capacity varies widely; but, almost without exception, they are incapable of profiting from the usual common school curriculum and should be put in special ungraded classes for retarded children. Some morons are able to learn elementary reading, writing, and arithmetic, and to understand other simple items of scholastic knowledge; also some are capable of getting along in society if trained in some simple task and given sufficient supervision.[23]

Imbeciles and idiots are defectives whose IQ's are below 50. They are unable to care for themselves or to benefit from any ordinary educational procedure. Imbeciles have been defined as "persons in whose case there exists mental defectiveness which, though not amounting to idiocy, is yet so pronounced that they are incapable of managing themselves or their affairs, or, in the case of children, of being taught to do so." [22] There is a wide variation in the physical growth and development of imbeciles. Some are as grotesque as the worst of the idiots; others are as good looking and pleasant appearing as any normal individual. Older imbeciles usually have a vacuous or stupid expression, even though the face itself may be well formed. At the time of school age, imbeciles are incapable of responding in any satisfactory way to the teaching of ordinary school subjects. They are unable to perform simple calculations (such as making change), to copy geometrical figures, or to recognize missing parts in pictures. Many of them can name the colors; understand and carry out simple commands; and say whether it is day or night, morning or afternoon. Some of them may learn to read or to spell a few of the two- or three-letter words, and to add and subtract numbers less than ten. A few can be taught to read and write simple sentences. Some of them are talkative, chattering in a childish way, but usually incapable of carrying on a conversation. They can be taught to dress and undress themselves under supervision and to understand and avoid many of the simple physical dangers of life. For example, an imbecile will understand that fire will burn him or that he may drown if he falls into a river. As a result of training, many imbeciles can be employed in such simple duties as scrubbing, sweeping, polishing, weeding garden paths, picking up stones in a field, collecting eggs, or helping in the laundry. These tasks they can do only under supervision. None of them contribute in an appreciable way toward the cost of their keep.

The idiot, by legal definition, is one characterized by mental defect of such degree that he is unable to guard himself against common physical dangers. A few of the high-grade idiots may learn to feed themselves or to connect some simple words with objects so that they can point to and name

certain things, or make their wants known. However, many of them have to be fed and cared for like infants. Almost all of them are incapable of forming sentences. Motor and sensory defects are common. Many idiots have a grotesque, stunted, and misshapen appearance because of physical malformation. The lowest grade of idiocy may be born without even the sucking reflex. Many of this grade make sounds but never learn to speak, nor do they learn to walk. Many of them do not seem to see or hear anything that goes on about them.

Psychologically, it is advisable to distinguish between stable and unstable types of mental defectives of the moron level. Those who are stable are usually inoffensive, well behaved, fairly industrious persons who pursue their way of life comparatively unmoved by things going on around them. They are easily pleased and made happy by praise and by childish amusements. Neither their joy nor their sorrow is excessive or of long duration. They appreciate and return affection and have some conception of "good" and "bad" behavior, but not in terms of abstract ideas or ideals. Many of these stable morons, who are cheerful and obedient, get into difficulty because of their unthinking eagerness to do anything which is requested of them. They rush blithely into situations which intelligent individuals would hesitate to enter and, therefore, they become the causes, and sometimes the victims, of situations having serious consequences.

The threat to society which comes from the unstable moron is more direct and, of course, more severe than that from any other form of amentia. The combination of emotional instability and mental defect produces a class of maladjusted personalities which provides a seemingly inexhaustible reservoir of asocial and antisocial persons. Unstable morons, psychopathic personalities, and borderline or unhospitalized schizophrenics account for most of the social problems of modern society.

Primary mental deficiency

Primary or endogenous mental deficiency runs in families. In spite of much investigation, causes other than hereditary predisposition have not been found. The first comprehensive survey looking into the causes of mental deficiency was made by Goddard.[10] One phase of his survey was the investigation of the now famous Kallikak family. He reported the history and ancestry of a girl to whom he gave the pseudonym, Deborah Kallikak. In 1898, at the age of eight, Deborah entered the Training School at Vineland, New Jersey. She had been born in an almshouse. Her mother had afterward married, not the father of Deborah, but the prospective father of another

child. She later divorced him and married another man who was the father of some of her other children. She had been led into these marriages by well-meaning people who thought that it would be unfortunate for a child to be born illegitimately. On admission to the Training School, Deborah was dis-

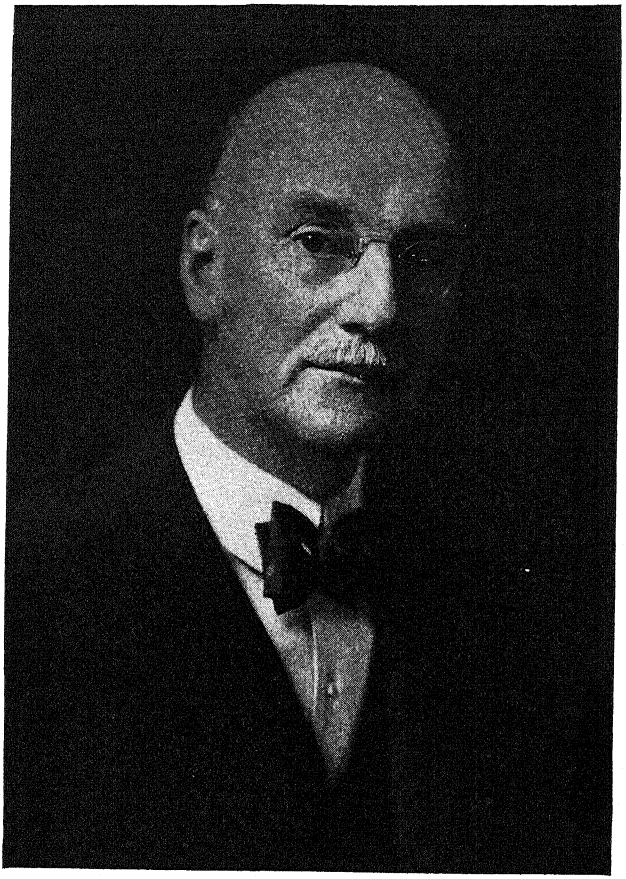


Fig. 18. Henry H. Goddard (1866–).

obedient, excitable, nervous, noisy, careless, obstinate, and destructive. She understood commands, knew the colors and a few letters, could not read or count, was able to carry wood and fill a kettle, could throw a ball but could not catch one, and could see and hear well.

After being in the Training School for fourteen years, she was at age twenty-two, cheerful, active, affectionate, and fairly good tempered. She learned new manual tasks quickly but required a half hour or twenty-four repetitions to memorize four lines of poetry. Her behavior demanded close

supervision. She was quick and observing; did good work in wood carving in kindergarten, and was excellent in mimicry. She was a poor reader, poor at numbers, poor at spelling, but excellent at sewing. She had the mental age of a nine-year-old child. In other words, she was a high-grade imbecile. While at the Training School she had been carefully guarded, and persistently trained, but very little was accomplished in the direction of raising general intelligence or mental ability. She would have been unable to maintain herself outside of the school because of her defective intelligence.

The great-great-grandfather of this girl was Martin Kallikak, Sr. He was of good family. During the Revolutionary War, he joined one of the numerous military companies. At one of the taverns frequented by the militia he met a feeble-minded girl by whom he became the father of a feeble-minded son. This child was given by its mother the full name of the father, and thus handed down to posterity the father's name and something of the mother's mental capacity. The illegitimate son was Martin Kallikak, Jr., from whom Goddard traced 480 descendants. Of these, there was conclusive proof that 143 were feeble-minded while only 46 were known to be normal. Evidence as to the mental status of the remainder was not available or was insufficient for forming an opinion.

Martin Kallikak, Sr., on leaving the Revolutionary Army, married a respectable girl of good family, and this union led to another line of descent of very different character. There were 496 direct descendants and all of them were described as normal people.

Here we have the history of six generations of two different family lines descended from a common ancestor. As might be expected, the interpretation of this family history, which is a record of a unique natural experiment, has met considerable criticism. It has been stated that the material was based on the surmises and opinions of ill-trained investigators who estimated the mental and physical states of both the dead and the living. Actually, this was not true. The investigators were well trained and really interviewed all the living members of the family. Regarding the persons who were dead, interviews were arranged with people who had personally known them. If conclusive evidence could not be obtained, the person in question was entered as undetermined. In fact, a study of the report as published in 1912 leaves one impressed with the scientific care and exactitude which were employed in this investigation. Whatever the criticism, Goddard did establish the fact that this variety of mental deficiency was a familial trait which persisted unaltered through several generations.

Many studies more recent than Goddard's have clarified the hereditary aspects of primary mental deficiency somewhat. Most of these persons

belong to the moron classification. There is a higher incidence of mental defect among relatives of morons than among relatives of idiots or imbeciles.[15] The recent evidence seems to show that the mental deficiency of these patients who constitute the tail-end of the distribution curve of in-



1912 1940

Fig. 19. Deborah Kallikak

telligence is the result of a combination of several genes, rather than one single "abnormal" gene.

Secondary mental deficiency

In general, secondary or exogenous mental deficiency includes those cases where there is some damage to the central nervous system. The damage may have occurred before, during, or after birth and the cause may

have been traumatic, infectious, or toxic. After the time of conception, something happened to the developing organism which prevented the regular or normal course of development. Abnormal brain development may result from a number of metabolic disorders before or after birth. There may be hemorrhage in the central nervous system before or at birth which results in defective brain structure. Infectious processes affecting the brain may result in irreversible damage. This general grouping includes such cases of mental deficiency as those associated with encephalitis or with congenital syphilis. Most of these exogenous cases are of the idiot or imbecile level. As a group they have many physical anomalies in addition to the intellectual defects. In spite of the hazards of pregnancy and birth, secondary mental deficiency is rare. Most of these are low grade defectives who die at a very early age. They have a low resistance to infection. They are almost invariably sterile and hence do not contribute to the genetic problem of mental deficiency.

The frequency and significance of traumatic factors in the causation of mental deficiency have long been overestimated. Although severe head injury may lead to mental defect, very few cases are really due to the time-worn explanation, "He fell on his head when he was a small baby."

The mental defect in certain cases of spastic paralysis often appears greater than it really is because of the motor disturbance, and many of these children respond very well to training in spite of their physical handicap. However, there are also in this category many low-grade defectives who present that state of absolute or complete idiocy in which humanity is reduced to a purely vegetative existence. Approximately one out of three cases of spastic paralysis shows mental deficiency of varying degree.

Special pathological types of mental deficiency

There are certain types of mental defect that are of interest for a variety of reasons. Being distinctive they have stimulated research which has led to more knowledge than is available concerning the basis of primary mental deficiency.

Mongolism

Between 5 and 10 per cent of all mental defectives are differentiated from the other varieties in that they have certain features similar to the Mongolian race, as well as other distinctive characteristics. The eyes are slanted or almond-shaped. There is usually a fold of skin covering the inner

corner of the eye. The head is small and round, the ears are malformed, the hands are stubby with an inturning of the little finger, which finger frequently has only one crease. The tongue is fissured crosswise. This abnormality is present at birth although it may not be immediately recognized. No one has ever observed a child born normal who became a mongolian idiot, or who



Fig. **20.** Mongolian idiot.

grew more mongoloid with age. On the other hand, some infants who appear slightly mongoloid at birth later lose the physical marks of this condition and develop normally. Evidently, whatever circumstances produce this condition must occur before birth. Mongoloid babies constitute 3.4 per 1000 births in America.[6] Mongolism appears in all countries and races, Caucasian, Negro, Chinese, American Indian, and Malayan.

The resemblance among mongols is startling to anyone who visits an institution for defectives for the first time. They look like brothers and sisters and have no resemblance to the family stock from which they come. This consistency in physical appearance and in mental level (high-grade idiots or low-grade imbeciles) leads one to expect some specific, uniform pathology. However, although the brain is usually underweight and poorly developed, it does not differ in any way which is characteristically different from the brain of other mentally deficient persons. In fact, several other types of mental deficiency show more profuse brain pathology than do mongols.

On the basis of his research Benda [7] developed the hypothesis that the pattern of development in mongoloids is indicative of a lasting deficiency of function of the pituitary gland. They are born with pituitary deficiencies, which have associated endocrine disturbances, particularly gonadal and adrenal deficiency. Benda holds that some of the abnormalities of the central

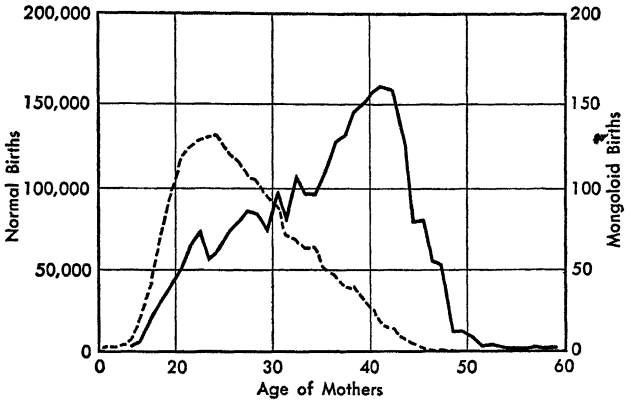


Fig. 21. Age distribution of mothers of normal babies, United States 1934, and of mothers of mongoloid babies. Dotted line—normal births; solid line—mongoloid babies. (From T. H. Ingalls & J. E. Gordon, *Amer. Jour. Med. Sci.*, 1947, *214*, 325.)

nervous system of these cases are developed during foetal life but that some of the damage comes from endocrine metabolic disturbance existing after birth. (The implication of this is that proper medical treatment of the mongoloid may have beneficial effects.) The existence of pituitary deficiency implied from the pattern of growth has been supported by autopsy studies in which pathology of the pituitary gland was demonstrated. Benda concluded that mongolism is a growth deficiency due to deceleration or arrest of foetal development in the early stages of pregnancy, probably about the sixth week of pregnancy.

Mongols are born to mothers who are older on the average than those having normal children, or children with other types of mental deficiency.[13] The average maternal age at time of giving birth to a mongoloid child is more than 10 years greater than the average maternal age at time of giving birth to a normal child. The significance of maternal age as an etiological factor is given different interpretations. Mongols are frequently the last-born children in large families. However, there are numerous instances in which mongoloids are the first child born, and in which the mother is very young.

The mental characteristics of the mongol show many variations, but a

mental age of seven years is regarded as their upper limit of intelligence. There is no characteristic form of sensory or motor disturbance. There often is marked sensitivity to heat and cold, while motor coordination and development are delayed and poor. Most mongols are unable to learn any tasks requiring complicated motor coordination. Generally, they are lively, restless, good-natured and cheerful. Many mongols die in infancy of some respiratory infection, and few survive beyond the age of twenty.

Microcephaly

This classification is applied to mentally defective individuals whose skull at completion of growth is less than seventeen inches at its greatest circumference. The head has a peculiar shape because of the failure in develop-



Fig. **22.** Microcephalic idiot.

ment of that part of the cranium above the eyebrows and the ears. Most microcephalics are either low-grade imbeciles or idiots. They constitute about 5 per cent of all mental defectives under the age of ten, or 0.5 per cent of all defectives at all ages. The condition has been erroneously attributed to either a premature union of the bones of the skull (leaving the brain with not enough space to grow and develop), or to atavistic reversion (evolutionary throwback). Actually, it is a gross mental defect which is associated with a primary physical malformation like other skeletal deformities of a congenital origin. Familial occurrence has been observed, but the present evidence for a genetic explanation of microcephaly is far from sufficient. Some reports have indicated that abnormalities of foetal environment may have either produced or accentuated this condition.

There is no sensory or motor defect which is regularly associated with microcephaly. Usually, these individuals are restless, vivacious, given to imitation, but unable to continue any kind of activity for a very long period of time.

Phenylpyruvic oligophrenia

Among the special hereditary types of mental deficiency is phenylpyruvic oligophrenia, which is characterized by a metabolic disturbance. Phenylpyruvic acid is a chemical substance which results from an abnormality in metabolism and its presence in the urine is the main diagnostic criterion for this type of mental deficiency. In one study of over twenty thousand patients Jervis[17] found this error in metabolism in 161 instances. Genetically, this condition depends on the effect of a single recessive gene. Clinically, these cases show motor disturbances and pronounced intellectual defect of the imbecile or idiot level. They are of particular interest because they suggest the possibility of isolating other types of mental defect which are associated with, or depend upon, some specific organic dysfunction.

Cretinism

Of the endocrine disorders which are found to be associated with mental deficiency, cretinism, which is due to insufficient secretion of the thyroid gland, is the best understood variety. The condition may be either sporadic or endemic, meaning that it may occur in isolated instances without known antecedents, or it may occur rather commonly in certain population groups where there is a known deficiency of iodine in the water supply. It constitutes 3 to 5 per cent of all institutionalized defectives.

In sporadic or isolated cases of cretinism—the type most commonly encountered in America—it is unusual to see the gross deformities characteristic of the untreated condition, since today practically all of these patients have been subjected to intensive thyroid medication. There are many instances, however, in which this treatment succeeds only in removing the physical marks of the disease without affecting the mental condition. The discovery and use of thyroid treatment will be discussed more fully in Chapter 22.

The characteristic features of the fully developed condition of cretinism are arrested growth, large head, extremely short legs, flattened nose, thick lips, protruding tongue, and sallow, dry skin which is so loose as to appear much too large for the stunted body. The child usually appears normal at

birth and is not recognized as abnormal before the sixth month. At that time it is apathetic and slow in movement, does not laugh or smile readily, and may be so lethargic as to refuse to nurse. Such children make little effort to sit up, to stand, or to walk until as late as the fourth or fifth year. Speech is delayed and may not appear until age seven or eight.



Fig. 23. Cretin.

As the cretin becomes older his body is greatly dwarfed and many who are fifteen or twenty years old are no taller than 3 feet. The legs are short and extremely bowed; the hands and feet are stumpy and ill-formed. Puberty is usually late and many of these patients remain sterile.

Mentally, the cretin is characterized by a defect extending to both intellectual and emotional development. The intelligence level of most cretins is that of the idiot or low-grade imbecile; while others are somewhat more alert, although not reaching the level of a moron. As a group they are placid, harmless, good-natured, and affectionate. They are among the least troublesome of all defectives.

Idiots savants

There is a rather rare and unusual group of aments who have been termed *idiots savants*. The idiot savant is a mental defective with some special ability which is quite outstanding in comparison to his other defects; for

example, an occasional imbecile may be able to paint pictures, play some musical instrument, give the day of the week for any past date, recite long columns of numbers, and so on. These cases are extremely rare and are probably of two kinds: (*a*) cases of simple dementia praecox whose history is not sufficiently known; and (*b*) feeble-minded patients whose one talent seems marked in the social group in which they live, but which on investigation proves to be unimpressive.

Causes

In no section of abnormal psychology has there been a greater controversy than that which has raged around the basic causes of feeble-mindedness. The question of whether these conditions are due to heredity or to environmental surroundings is one which has been debated for the past hundred years. There is no doubt but that the family stock of many feeble-minded patients is replete with other instances of feeble-mindedness, psychosis, neurosis, criminal behavior, or pauperism. There are those who hold that the defect in intellect is determined by hereditary predisposition and that the deplorable social circumstances surrounding feeble-minded families grow out of the fact that most of their members are stupid and unable to care for themselves adequately. There are others who argue just as vigorously that the primary cause of feeble-mindedness is to be seen in the lamentable environmental circumstances which involve the lack of economic opportunity, poor nutrition, and poor education. They maintain that if these stupid persons had had adequate educational and social opportunities, they would, at least, be much brighter than they are. In part this argument is based on emotional preconceptions and bias. But some of the difficulty arises from the fact that not all feeble-minded persons have a genetic predisposition and not all come from poor environments. We are dealing with a group of persons in which the major abnormality is defective intellect. It is apparent that the defect may be associated with a wide variety of causes and neither heredity nor environment provides a sufficient basis of explanation.

Since these aments are, for the most part, defective from birth, the basic cause must either be in the germ plasm or must affect the foetus during gestation. There is some evidence to the effect that a foetus exposed to *overdoses* of X-ray irradiation may develop certain physical anomalies, such as microcephaly. It has also been shown that deficiencies in nutrition, particularly lack of vitamins, may interfere with normal development, and so become the cause of mental defect. Other factors which may produce

amentia during or soon after birth include epileptiform convulsions, direct injury to the brain, and infections such as meningitis, encephalitis, measles, and syphilis.

Much investigation has been directed toward the point of whether or not alcohol and drugs taken by parents are capable of producing mental abnormalities in the offspring. The best available evidence at present indicates that no mental defect in the offspring results from either alcoholism or drug addiction in the mother or father.

Pathology

Many low-grade defectives are physically malformed and show deviations in development. In an effort to find additional concomitants of this maldevelopment, various laboratory tests have been used. Most studies have failed to reveal any important or consistent difference in the blood chemistry or cell constituents of defectives and of normal controls. Since syphilis is known to produce mental defect, repeated investigations have been made of large groups of aments to see whether or not the Wassermann test would disclose the fact that idiots and imbeciles who were not known to have had syphilitic infection might react positively with this indicator of syphilis. In general, such positive Wassermann reactions as are found among the mental defectives are associated with other evidence of congenital syphilis.[20]

The anatomy of the brain of the mental defective has been shown to include many anomalous conditions. It is impossible, at present, to assign any known cause of these anatomical deviations. In a few cases of both idiocy and imbecility, no gross anatomical changes have been found in the brain. The microscopic examination of the neurological structure of the brain of the mental defective usually discloses a wide variety of deviations and defects in the development of cell structure. It is difficult to interpret these deviations, since we are still on unsure ground with respect to the relationship between neurological structure and psychological function.

Psychology

The mentally defective are obviously inferior to the normal in certain general psychological functions. They show inferiorities in controlled attention, memory and simple ideation, and in the ability to grasp similarities, differences, and other relationships. Because of these deficiencies, their reasoning, judgment, imagination, and ability to learn are poor. They have difficulty in adjusting to new situations and show little or no originality.

Most of the usual techniques of research used for the study of sensation, perception, and mental organization are not appropriate for studying persons of very low intellectual level. These persons do not have the capacity for introspection, nor are they able to use or to understand language which is involved in the research. For this reason, much of the psychological description of amentia is based on general observation of groups of cases.

In regard to sensory acuity, there does not seem to be gross impairment except in some of the low-grade cases. Attention to stimuli or alertness may be of such low order that the moron or imbecile may appear to have a grave sensory defect, when but little exists. Observations of certain low-grade cases have indicated that they often do not respond to stimuli which are intensely unpleasant to the normal. They will chew quinine or smell strong ammonia fumes without giving any indication that it is unpleasant to them. Perception depends upon sensory representation in higher brain centers so that, even though sensory mechanisms are normal in the mental defective, their organized perceptions may be of a different order because of the defective brain structure.

In recent years there have been several applications of the testing procedures used with subhuman primates to groups of low-grade mental defectives. Several interesting findings have resulted. Aldrich and Doll [3] applied problem-solving tests involving the use of tools, similar to those used by Köhler with apes. The goal object was a ball or cookie placed in a cage which could be reached only by a hooked stick, two joined sticks, or a second stick procured by use of the first stick. The more difficult tasks were solved only by the superior portion of the group, whose mental levels were about three years. In comparing the performance of idiots and apes, the idiots displayed a comparatively greater learning facility, but there was a marked similarity between the two groups in the mode of attack and the type of solution employed. Preschool children, with approximately the same degree of mental development as the idiots, were superior in the development of language and in the ability to acquire new modes of response. All subjects showed the sudden drop in the learning curve that has been called "insight."

Harlow and Israel [16] applied a delayed reaction test to mental defectives with mental ages of less than three years and catarrhine monkeys. They found that the defectives had no difficulty with delays of 15 seconds, and that in this aspect of immediate learning they were superior to the monkeys. With longer delays, there were no essential differences between the groups in learning ability. Gordon and Norman [12] employed puzzle boxes with increasingly complex lever systems with two hundred defectives. The great

majority of the cases used the general trial-and-error method, as do anthropoid apes on similar tasks. Unlike normal adults, they were unable to form an immediate perceptual configuration of the whole problem. The grasping of spatiomechanical relationships of such complexity presented serious difficulties to the mentally defective.

These experimental investigations dealt primarily with the very low-grade defectives and, of course, did not describe the mental defectives as a group. The mental organization of high-grade mental defectives is much more similar to the normal. When morons are contrasted with normals, the differences found are considerably less.

In an interesting series of experiments, Werner [24, 25, 26] and his collaborators have demonstrated differences between those who are mentally defective because of some brain injury and those in whom there is no such injury. Differences were found in the way in which each group organized their perceptual field and made use of abstractions in thinking and in animistic thinking. The brain-injured cases were more concrete in their thinking and problem solving. For example, the brain-injured differentiated between animate and inanimate objects most frequently on the basis of use or human characteristics, while the familial type defectives usually discriminated on the basis of spontaneous movement. Werner attributed these differences to either a disturbance in the primary schemata necessary to adequate perception, or to undue attraction which random stimuli exert on the brain-injured child.

With respect to personality traits other than intellectual ability, it has been pointed out that all degrees of aggressiveness and submissiveness occur among aments. There is evidence that the defectives are more suggestible than the normal. In many cases of criminal offenses or petty thievery among the feeble-minded, it was found that they were passively led into antisocial behavior.

Morrison [19] described reactions of fear and anger occurring in the very low-grade cases, but there was no possible comparison with the normal as to relative frequency of these reactions because of the protected environments in which these aments lived. In a study of fears of normal and defective children, Bolles [8] found that the reported sources of fear correlated more closely with mental age than with chronological age or IQ. The feeble-minded generally have been found to be lacking in the more complex emotions or sentiments, where intellectual factors necessarily play a role.

Table 7 provides some samples of the occupational level of function that could be accomplished by the mentally defective, of different mental age levels. It provides some idea of the limitations of the mentally retarded.

Table 7. Minimum mental age level for various occupations *

Mental Age in Years	*Male*	*Female*
Two	Feeds self	Feeds self
Three	No work; plays a little	No work; plays a little
Four	Tries to help	Tries to help
Five	Wash dishes	Wash dishes
	Scrub and polish floors	Scrub and polish floors
	Feed chickens; gather eggs	Pare vegetables
	Handle ashes and garbage	Sew rag carpet
Six	Mow lawn	Simple laundry work
	Kitchen scullion	Weave rag rugs
	Mix cement	Fold clothes
Seven	Farm labor	Simple domestic work
	Rough painting	Hand ironing
	Simple carpentry	Simple knitting
Eight	Simple barbering	Make baskets
	Simple gardening	Make dresses cut out by others
	General care of farm animals	Higher grade domestic work
Nine	Cobbling	Cut out and make dresses
	Vegetable gardening	Plain cooking
	Repair furniture	Knit mittens
Ten	Printer's assistant	Fancy laundry work
	Electrician's assistant	Baking cakes and pies
	Simple dairying	Canning
Eleven	Competent janitors	Simple library work
	Stock keepers	Embroidery
	Small store keepers	Simple factory machine operator

There are three rather obvious points regarding amentia which because they are often overlooked deserve specific statement: (*a*) Mental defectives differ among themselves not only in intellectual level but in personality organization; hence, each individual must be considered separately. (*b*) Most amentia has a large hereditary element and the social consequence of this should not be overlooked. (*c*) A person can never be trained to do a task which demands a higher intellectual level than he possesses.

Therapy

Almost every conceivable form of treatment has been used in a hope of increasing the intellectual level of the ament. Clark [9] advocated psychoanalysis to relieve emotional blocking, so freeing intellectual development. Its application proved of no avail. Stimulating drugs, hormones (except for thyroxin in cretinism), and vitamins are ineffective. An integrated pro-

* Compiled from H. H. Goddard, *Feeblemindedness: Its Causes and Consequences*, New York, Macmillan, 1916, 581, and A. S. Beckham, "Minimum Intelligence Levels for Several Occupations." *Person. Jour.*, 1930, *9*, 309–313.

gram of special education does bring out more completely the potentialities of the ament but it never carries him beyond his limited abilities.

During recent years it has been found that glutamic acid (an amino acid synthesized by the body) does raise the mental level and social adaptability of some aments.[1] In a limited series of aments an unmistakable rise in the level of mental function occurred. When the patients were given no glutamic acid but instead a neutral dose they slumped back to the previous level of mental function. The investigators believed that the performance of the total personality rather than of some circumscribed intellectual functions, showed improvement. Other experimenters have given glutamic acid to a larger number of feeble-minded cases and have found significant improvements in mental functioning on verbal and motor tests as well as the Rorschach Test.[28] Comparative study after six months and after one year of treatment with glutamic acid showed that the greatest improvement occurred within the first six months. Unpublished results [2] indicate that glutamic acid tends to be more effective in exogenous than in endogenous cases; the range of increase in IQ is from 5 to 25 points; not all aments are benefited; thus far no good basis has been found for predicting which kind of case will respond or how great a response may be anticipated. The physiological mechanisms underlying the effect of glutamic acid on intellectual function are not yet understood. It would be raising false hopes to say that a treatment for mental deficiency has now been found. Most workers in the field agree that it is too early to evaluate the practical value of glutamic acid on mentally retarded subjects, but a great deal of research along this line is now being carried out.

Summary

Amentia is primarily a deficit, a failure in development of intelligence or intellectual capacity. It is associated with physical malformation and brain anomalies. Over 75 per cent of mental defectives are cases of primary amentia—meaning that, except for heredity, there is no known cause. The remaining 25 per cent are attributed to injury, infection, endocrine disturbance, and the like. Mental defect occurs in all degrees from absolute, helpless idiocy to borderline normality. Special pathological varieties are cretinism, mongolism, and microcephaly. There is no consistent or uniform pathology found among aments. Psychological studies have shown a fair amount of variability in factors other than intellect, but, in general, the deviations are closely related to the deficit in intelligence.

On the basis of our knowledge today we must conclude that mental

deficiency, in general, is for all practical purposes neither preventable nor treatable. The advice of the geneticist may reduce the occurrence of certain rare forms in which the genetic basis has been established. Glutamic acid may be useful in helping certain conditions, although it is too early to evaluate its significance in the field. Better prenatal and obstetrical care, with surgical intervention in cases of suspected brain hemorrhage at birth, have been considered a further hope. Sterilization of certain mental defectives may reduce the incidence of new cases somewhat but not to any significant extent, since only a minority of the parents of feeble-minded patients are themselves feeble-minded. Institutionalization with appropriate simple vocational training is at present the best available means of handling the problem.

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SECTION TWO
VARIETIES OF
ABNORMALITY

Chapter 18 *Psychopathic Personality*

MISFITS WHO CANNOT BE OTHERWISE CLASSIFIED OR DIAGNOSED ARE termed *psychopathic personalities*. They are misfits in society in that their behavior is disturbing and destructive. Such persons are not thought to be primarily neurotic, psychotic, intellectually defective, or physically ill. Since there is a need for some diagnostic label for these abnormal persons who do not fit into the ordinary categories—the "left overs"—they are known as psychopathic personalities. Some authorities have used the terms "psychopathic inferiority," "constitutional psychopathic state," "constitutional psychopathic inferiority," "sociopathic personality," or "moral imbecility" to designate such individuals. They are an extremely diverse collection of persons who fall into this classification. Whether or not there is any common thread of psychological similarity among them is debatable. There are certain general similarities among many of them but the common traits (if any) are difficult to establish.

An individual psychopathic personality (usually the designation is shortened to a "psychopath") usually causes more trouble, personal distress to families, relatives, and associates, more public expense and disruption than any individual abnormal person from any other group of mental deviants. Psychopaths are trouble-makers; they are disturbers of the peace; they are ornery and cantankerous. Except in a few extreme instances they cannot be committed as insane no matter how irresponsible and eccentric they seem. These persons are not physically or mentally ill in any usual sense. Their crimes and misdemeanors are not motivated in the same ways as those of ordinary offenders. They may be, and often are, convicted for specific misbehavior, but when they are released from custody they usually return to their consistently disturbing behavior.

Characteristics

No single sort of behavior or subjective experience can be isolated and said to be characteristic of all psychopaths. Most of the symptoms lie well within the range of normal personality reactions, while others seem somewhat akin to those found in the neurotic or psychotic patient. Here, more than anywhere else, one must try to understand the total personality. Social maladjustment is the most frequent deviation of the psychopath. This maladjustment usually starts in childhood. The psychopath is likely to have been headstrong and difficult to manage as a child. His conduct in school is apt to have been annoying to the teacher and disrupting to the class, while neither punishment nor praise made any real or permanent change in the way he acted. When discipline was imposed he may not have rebelled but he certainly did not reform. Intellectually he was always regarded as quite normal so that it was obvious that the defect could not be related to stupidity. It was always hoped that he would outgrow this "childish" or "outlandish" misbehavior but he never did. He was fundamentally unchanged by the experience of unfortunate consequences following his irresponsible acts.

Sometimes the actions of such personalities seem so senseless and unnecessary that they resemble psychotic behavior. However, psychopaths appear perfectly logical, coherent, and reasonable in conversation. They usually make a very good appearance and often have unusual ability in dealing with other people and getting what they want from them. They can make others like them, believe in them, and endure them to an incredible degree. They are experts in the use of every possible excuse and rationalization and they make these excuses very convincing to others. Some may carry out crimes without any apparent effort to cover up their actions when it is obvious that they will be caught and punished. Instances have been reported in which a psychopath has stolen a car merely because he saw it parked with the keys in place. There was no immediate need for the car, in fact his own car was parked in the next block at the same instant. Psychopaths may be alcoholic addicts, drug addicts, or sexual deviants. But the addiction or sexual aberration is but an added feature and not essential to the basic defect.

Psychopaths are basically extremely egotistic, selfish, and thoughtless of the rights, property, and feelings of others. They seem unable to form any strong or enduring love-attachment to another person. They feel no guilt or remorse over sacrificing their closest friends to achieve some transitory goal. Even though they express their emotions freely and volubly it is doubtful

whether they are capable of deep, sustained emotion. Their behavior indicates that they have no feelings of responsibility or loyalty toward others and that even though they profess remorse and a desire to improve, these statements are but devices of the moment used to get them out of some difficult situation.

Psychopaths have an inadequate control of their emotional impulses, particularly their aggressiveness. They are unable to maintain their actions toward a consistent goal and are changeable and vacillating. They are the victims of their immediate impulses, unrestrained by thoughts of future consequences. Their standards of ethics and morals are low or absent. They are lacking in a feeling of group responsibility and the need to conform to social standards. They are quick to seize upon ideas and methods of others and to proclaim them as their own. They are not original or creative in their thinking but because of ethical defects, more than usually opportunistic in their actions.

Varieties [8]

It is possible to classify psychopathic personalities in an almost endless fashion. Because of the wide variation between individuals it is difficult to set up distinct, clearly defined types. One can give examples of varieties of behavior but these are really only illustrative and in no sense final or complete. These classifications are no more than descriptive of the more frequent varieties.

Eccentrics are marked by a lack of inner unity and consistency in their own mental lives. They may show peculiarities of expression, bearing, dress, and speech, as well as in their motives and their thinking. Within the range of normal individuals, there are many who show slight eccentricities, striking habits, and peculiarities; some who exaggerate their enunciation, or put special emphasis on certain food or clothing. It is not possible to call all eccentrics, psychopaths, and certainly all psychopaths are not eccentric. In the character of the eccentric psychopath there is an essential *weakness* which shows itself in various forms of anxiety, ill-humor, depression, or hysterical tendencies. All of these expressions of inner weakness or insecurity find expression or compensation in forms of oddness, peculiarity, or originality which serve to mask the inner feeling so far as they are personally concerned. Some of these eccentrics have a marked aversion to some definite person, for example, a brother or a stepmother, regarding this person as the source of their unhappiness. Others show impulsive weaknesses, psychosexual infantilism, avoidance of the opposite sex, odd ascetic

ideas concerning the relationship of the sexes, or some other variety of sexual peculiarity.

Psychopathic vagrants are those who are unable to take up any fixed abode, and who unnecessarily endure hardships rather than the greater comforts which could be obtained by a moderate amount of occupational stability. Most vagrants belong in one of the following groups: (*a*) the occupational migrants whose work is seasonal, such as farm labor or lumbering; (*b*) those who must keep on the move because of a criminal record; (*c*) those whose health seems better with regular changes of climate; or (*d*) those who are psychopaths. The vagrant who is classed as a psychopath is one who is overwhelmed by the desire to *move on* without any other rational explanation for his vagrancy.

Many of these psychopathic vagrants are willing workers, following some skilled or semiskilled trade. They will seek employment, do excellent work, and then, after several weeks or months, leave the job and move on to some distant city or village where they repeat the cycle. They can give no good account of their desire to move on other than that they are overwhelmed by a wish to be somewhere else, that "somewhere" being none too definite in their own minds. If they marry, they may desert the spouse, remarry, and desert again. They seem surprised when accused of bigamy.

Trouble-makers (or cranks) in many instances show behavior similar to that of the paranoid patient. So long as they do not go too far outside social bounds, the community regards them as trouble-makers whose ill nature must be put up with. Their socially undesirable beliefs (either good or bad, true or false) are fairly systematically worked out. Some of these persons are particularly quarrelsome and inclined to take legal action on little or no basis. They show a lack of sympathy and sentiment; a lack of mercy and loyalty. They do not understand other people; they have few, if any, true friends. Their trouble-making grows out of their own dominating selfishness, their lack of human understanding, and their craving for prestige, plus a constant warfare with persons who have crossed their path, all of which adds up to a gross deviation of self-reference and in paranoid ideas.

To assure themselves of their own essential importance they select from the events and conversations of everyday life incidents which they combine into systematic ideas of personal affront or glorification. These systematic ideas must be defended at all costs. Their own ideas are sacred and must not be questioned. Some of these individuals have a superficial vivacity or good humor which enables them to make good initial impressions that may continue if one meets them but occasionally. Where they are associated with

others, either in the family or on the job, their touchiness is a source of continual discord.

Like the trouble-makers, most *fanatics* are of the paranoid type, but have not expressed their maladjustment in a fashion which others consider too irrational. Fanatics may be either active or passive. The active fanatics identify themselves completely with an overvalued idea which may of itself be quite reasonable (for example, fighting for prohibition), or quite unreasonable (for example, closing all hospitals). They lack any judgment as to whether their cause is reasonable or not. The idea is fought for in such an inconsiderate, one-sided manner that the fanatic frequently hurts his cause more than he helps. With complete lack of judgment the fanatic charges his opponent with impure motives, untruth, immorality, and dishonesty. He insults his adversary in the most uninhibited manner and is surprised when his own charges are urged against him. This only serves as an immediate strengthening of his conviction that he is waging a battle against scoundrels and blockheads. These zealots are excitable, irritable, and yet, predominantly cool. They are overly self-reliant, frequently suspicious and jealous, very ambitious for prestige, and lacking in humor.

The passive fanatic is sometimes called the queer fellow, or the stranger to reality. Such persons are highly egotistic, desirous of prestige, filled with resentment, and truly eccentric. No matter what the nature of their overvalued ideas, they usually remain harmless either as leaders or followers, at least until they are driven to battle by inexpedient law and prosecution. This may lead them to consider it their duty to devote themselves to demonstration and action. In this group are found dreamers, the founders and followers of new or strange religious cults.

Senseless criminals commit offenses, murder, assault, arson, or theft, when neither they themselves nor anyone else can see any reason or justification for the act. Generally speaking, their criminal conduct is of an aggressive, self-assertive nature. In the history of most such criminals one finds evidence of uncontrolled aggressive outbursts before the age of eighteen. They recognize their own difficulties but are unable to control their explosive tendencies. Their behavior constitutes a kind of partially dissociated personality. Their conduct disorder is more serious in its effects than the dissociation of the hysterical person, but not so disorganized as that of the psychotic patient.

One such individual wrote of himself: "I cannot explain anything as my actions have certainly been inexcusable. The irony of returning to this sort of life [prison] after tasting the sweets of real living makes me grit my teeth in an agony of despair which is indescribable. . . . The difference between

my thoughts and deeds must strike any intelligent person that I am a madman, utterly and irredeemably insane. Perhaps I am at times. I cannot account for the diversity of my thoughts and actions." *

Such individuals are difficult to please, are intolerant of routine, imperious, bad losers, petulant, egotistical, and emotionally immature. The impulsive, furious act seems to be a symbol of a person in rebellion against organized society. It is an overwhelming of their social inhibitions (Superego) by their blind, unconscious impulses (Id). Some psychological maladjustment appears to set up a state of tension which eventually crystallizes into violence which is followed by relief.

The peculiarity of the *explosive psychopath* is his exaggerated tendency to respond to unpleasant events and other stimuli by an explosion-like burst of temper. This tension rapidly reaches a peak of excitement which almost as suddenly subsides. This uncomfortable trait is similar to the impulsiveness which forms part of the character of the senseless criminal. The aggressive act may take the form of suicide which is, in many instances, an impulsive response to frustrating circumstances. The suicidal act is consistent with such a person's life pattern of turbulent, impulsive outbreaks whenever difficulties arise. Suicide may be the final act of rebellion by a misfit who has been in constant warfare with himself and with society. The man who, on account of a headache associated with a family quarrel, reached for his pistol, saying that a long sleep—preferably in a graveyard—was the only thing that would cure him and his troubles, illustrates the point.

The *depressive psychopath* is characterized by a persistent gloomy feeling tone pervading all his life experience. He is serious, overconscientious, and unable to throw off the effects of the events of everyday existence. He is a genuine pessimist who sees the future dark and dangerous before him. To escape from himself and from reality, he may resort to suicide. The suicidal act is his method of avenging himself on friends and relatives. It is a final unanswerable and irresponsible demonstration of his own righteousness. Suicides [3] are by no means limited to these two varieties of psychopathic personality or to persons who are mentally or physically sick. In all probability, any person may think of committing suicide if his particular life situation appears unusually desperate and the proper means for suicide happen to be available. The impulse reaches overt expression only as a result of a peculiar and complex combination of circumstances.

Moral defectives [14] or moral imbeciles constitute a group recognized and defined by English law (1927) as, "Persons in whose case there exists

* D. K. Henderson, *Psychopathic States*. New York, Norton, 1939, 64.

mental defectiveness coupled with strongly vicious or criminal propensities, and who require care, supervision, and control for the protection of others." This variety is not recognized in American law or in American psychiatric classification. This essential and uncomplicated moral and ethical defect, though uncommon, does occur and is real and permanent.

Moral defectives profit by training in the ordinary school subjects, may be nimble-witted, good conversationalists, plausible in argument, and well equipped to explain their own conduct. In spite of this, they are incapable of adapting themselves satisfactorily to their social environment. They are unable to evaluate their actions, are unable to form sound judgments, to take long views, to make prudent plans, to forego an immediate but transient gain for the sake of a greater and permanent advantage. They seem truly incapable of experiencing any inner feeling concerning the rightness or wrongness of an act, or of profiting from experience. Personal ethics are purely theoretical to them. They are selfish, lacking the slightest regard for the rights or feelings of others; they are devoid of affection, gratitude, shame, or remorse. They are vain and conceited, but without self-respect.

Pathological liars [4] indulge in falsification which is entirely disproportionate to any discernible end. Such liars are not otherwise physically or mentally ill. The lying rarely centers about a single event, but manifests itself over a period of years or even a lifetime. It is a consistent trait rather than an episodic response. It may take the form of accusation, either of the self or of some other person. It frequently develops into swindling. Pathological lying is a frequent element in juvenile delinquency, but only a small proportion of delinquents can be called pathological liars. An example of a pathological liar was a carpenter, aged thirty-five, who presented himself at the District Attorney's office and stated that in a fit of jealousy he had shot and killed a man. He gave a detailed and convincing account of his actions. Police investigation showed that his story was completely untrue. He seemed astonished when told that the man he claimed to have killed was still alive.

Psychological studies of pathological liars have shown that their range of ideas is wide; their range of interests is wider than would be expected on the basis of their education; their perceptions are better than average; they are quick-witted; they exhibit faulty development of ethical or moral concepts and judgments. They show a lack of self-criticism combined with an abnormal egotistic trend of thought that biases their judgments concerning themselves. Their thought processes are logical but there is a marked lack of ethical discernment. The pathological liar never faces openly the question of whether or not his lies may be seen through.

Psychosexual deviants

The recent survey of Kinsey [9] and his coworkers has given a new understanding of the range of variation in human sex behavior and the frequency of the so-called deviant forms of sexuality. From the viewpoint of a biologist, Kinsey prefers the terms "frequent" and "rare" to the terms "normal" and "abnormal" in designating individual examples of rates or sources of sexual activity.

Kinsey concluded from his surveys of all forms and frequencies of sexual activity that there is a continuum of variation rather than discrete types or sub-groups which can be termed abnormal. The less frequent forms of sexual behavior are not necessarily expressions of psychopathology as has often been held. He found that most persons who engage or have engaged in sex activities that are considered morally or legally taboo make satisfactory social adjustments.

Among those having a low frequency of sexual outlet there were several different biological patterns. For example, there were those who were low in sex drive (without evidence of either repression or sublimation); there were those timid or inhibited individuals who were afraid of social condemnation or their self-condemnation if they were to permit themselves to engage in any type of sexual activity; and those in such poor health or having such physical deficiencies that any extraordinary expenditure of energy was avoided. Other investigators [10] have termed individuals belonging to this low-frequency group, *psychosexually immature* and have shown that this pattern frequently occurred in those individuals of an underdeveloped (hypoplastic) body build. This immaturity was interpreted as an arrested development of sexuality or, at best, a very slow and retarded form of development.

Homosexuality, defined as sexual relations between two members of the same sex, is socially, morally, and legally banned and taboo. For this reason it has been difficult to obtain valid data in regard to its frequency, and the reports of different investigators show considerable variation. In the Kinsey report, the frequency of homosexuality was so high that it surprised the investigators. They carefully checked and rechecked their frequency counts in different groups to assure validity. It was found that 37 per cent of the total male population studied had some overt homosexual experience between adolescence and old age. Among males who had remained single until age 35, this incidence rose to 50 per cent. The corresponding figures for the female population studied were about 25 per cent, and 33 per cent. It is a popular impression that the great majority of people are essentially

or absolutely heterosexual, a few are homosexual, and still fewer are bisexual (have relations with either sex). Actual personal histories indicated that heterosexuality and homosexuality did not occur on an all-or-none basis in many individuals but that there was a balance between the two tendencies. In some, heterosexuality predominated, in others homosexuality predominated, and in some there were equal amounts of both types of experience. In other words, a continuous gradation was found between exclusive heterosexuality and exclusive homosexuality. Four per cent of white males and about three per cent of white females were found to be exclusively homosexual throughout their lives.

Kinsey considers false the idea that homosexuality provides evidence of psychopathic personality. He bases this conclusion on the frequency of homosexuality in the general population and on the fact that a high proportion of those with a history of much homosexual activity could not be thought to be psychopathic personalities on the basis of anything else in their life history.

The occurrence of deviant sexual practices and impulses in a true psychopath may constitute a real danger to society, as evidenced by an occasional violent "sex" crime. The legal status of the sex criminal is a troublesome and difficult subject. There is no doubt that certain persons guilty of sex crimes should be segregated permanently from society as should the homicidal psychotic but the problem is how to bring about this segregation before the crime.

There are certain terms commonly found in the literature on deviant forms of sexuality which deserve clarification. *Inversion* is a term used in psychiatric literature as synonymous with homosexuality. It is sometimes used to refer to sexual situations in which males play female roles and females play male roles. According to the latter definition inversion and homosexuality are two distinct and not always correlated types of behavior, since the exchange in role taking may occur in heterosexual relations. *Transvestitism* refers to the wearing of clothes of the opposite sex in order to gain erotic satisfaction.

Extreme *narcissism* is an exaggerated form of self-regard or self-love; the state of being in love with one's self, with outspoken and overt erotic attraction to one's own body. The extreme narcissist takes himself as his sexual goal and sexual object. The psychopathic narcissist collects photographs of himself in the nude; dresses or ornaments himself fantastically before the mirror. Narcissists are reserved, tender, delicate, or cold individuals who love solitude and are literally self-sufficient.

Pedophilia, gerontophilia, and *zoophilia* are abnormalities in the prefer-

ence of the object for sex outlet. The pedophile seeks a child or young adolescent as a sex object; the gerontophile, an elderly person; and a zoophile, an animal. The preference of each of these types is thought to be based on a complicated emotional conditioning related to feelings of personal insecurity, shyness, inadequacy, and, perhaps, of incest desires. These behaviors are subject to criminal prosecution.

Fetishism refers to the erotic arousal value of some nonsexual object. The fetish may be a necessary associate for an otherwise normal sex outlet. The objects vary from love symbols (ribbons, rings, locks of hair) to unusual forms of erotic and sexual fetishism in which the sexual partner disappears entirely from the symbol and the symbol itself becomes the adequate sex-object. Clothing, shoes, furs, handkerchiefs, and the like, may become sex-objects of themselves. In other forms of fetishism the sex partner must be clad a certain way, must bear only a special odor, or the bed must have only certain decorations before sex-excitement can be established. Probably, fetishism is a form of conditioned emotional response, the result of past experiences in which the object was associated with sexual satisfaction.

Exhibitionism means the public display of the genital regions for the purpose of obtaining sexual satisfaction. It usually occurs in old men. The exhibitionist usually is bashful and defiant, has an exaggerated childish sense of shame, together with a general deterioration of emotional control.

Sadism and *masochism* are methods of securing sexual satisfaction through the infliction of pain and endurance of torture, respectively. These terms have been widely used and broadened in meaning by the psychoanalysts. The analysts point out that sadistic torture and masochistic suffering are not limited to the physical preparation for, and accomplishment of, the sex act, but constitute basic attitudes which reach deeply into the individual mental life. This may or may not reach the level of criminality, but many crimes which are called psychopathic have sadistic or masochistic elements.

Satyriasis and *nymphomania* are exaggerations of the normal heterosexual impulse in the male and female, respectively. Such persons are possessed by an almost constant sex urge; they are sexual athletes. Constant desire keeps pace with their sexual capacity and activity. In the unstable male psychopath, this desire may lead to various abnormalities in behavior, or to sex crimes if adequate outlet cannot otherwise be accomplished. In the female, prostitution, either paid or unpaid and without regard to disease or possible conception, may occur.

Kinsey [9] holds that the current concepts of normality and abnormality in human sex behavior are based upon moral evaluations and have little if

any biologic justification. Sexuality in its basic biologic origin is a capacity to respond to any sufficient stimulus, in a form determined by physiologic response and psychological conditioning. He found that between two thirds and three fourths of American males and some lesser number of females have engaged in some form of so-called "perverse" sexual behavior at some time between adolescence and old age. Only a small proportion of those who engaged in "unapproved" sexual activities were consciously disturbed by their unapproved behavior or ever got into any social conflict because of such behaviors. The available data did not establish why some became disturbed as a result of this behavior and others did not. It was believed that the individual's fear of social condemnation of his departure from the locally accepted code was the most potent source for his personal disturbance. Among those who were disturbed several different patterns of reaction were observable. Some were neurotic individuals who, in all likelihood, would have been neurotic even if sexuality had not been involved. Some were persons who were basically timid. Some were rebellious persons who objected to all controls of social conformity and characteristically and consistently defied social conventions. (Although Kinsey does not apply the term psychopath to these latter cases, the similarities between them and the personality characteristics described previously in this chapter are obvious.)

Theories

Most of the explanations of the origin or cause of psychopathic personality apply only to some rather arbitrarily delimited subgroup or type. Kraepelin divided psychopaths into groups which he called the excitable, the unstable, the impulsive, and the quarrelsome. Henderson [5] differentiated between the predominantly aggressive, the predominantly passive or inadequate, and the predominantly creative. Curran and Mallinson [2] divided psychopaths into three overlapping groups, the vulnerable, the unusual, and the sociopathic. They held that the vulnerable personalities are the potentially unstable persons who have only a small margin of reserve and who, when caught by circumstances, are liable to develop neurotic, psychotic, or psychopathic reactions. The type of reaction will depend on the circumstances. These are persons who "break" under tension or maladjustment. They recover when the circumstances are altered. Therapy is usually successful if the environmental circumstances can be made easy and kept favorable for the individual. The sociopaths are asocial and antisocial. They may be either predominantly inadequate or predominantly aggressive.

Those who are inadequate are usually characterized as having constitutional psychopathic inferiority. They are weak, unstable, and complaining. Therapy consists of constant care, supervision, and "babying." The predominantly aggressive may be either fanatics or criminals, depending on whether their aggression is directed toward the betterment (?) of society or toward the deliberate flaunting of social rules and laws. No form of therapy has been effective with the antisocial psychopath.

Sullivan [13] characterized the psychopathic personality as having a biological defect in the ability to profit from experience, or what others would consider their experience. Intellectual factors are not involved. They seem to experience life differently from the rest of humanity and their insight into reality is correspondingly different. Their interpersonal relations are chiefly characterized by a lack of duration; they live through a great number of fleeting involvements with other people. They are unable to use foresight to control their immediate gratifications. They can think ahead, but when they go into action they are governed by immediate satisfaction and disregard the future. Stalker [12] considered the two major components in psychopathic states to be a defect in the social instinct and a general emotional immaturity. He said that the two components may be related inasmuch as the lack of social feeling prevents the development of inhibitions and controls, as well as group adaptation.

Both genetic and environmental factors were emphasized by Kahn.[8] He defined the psychopathic personality as one characterized by quantitative peculiarities in impulse, temperament, and character. In his terminology impulse is equivalent to drive, overtly expressed as the output of energy. Temperament refers to the way in which behavior is objectively manifested and subjectively experienced. Both of these components in the total biological organism are determined genetically and not by experience. Character in his usage, involves the tendency to strive toward goals, and is manifested in systems of attitudes toward the self and toward other people. This component is determined by the social environmental forces which act on the person, although genetic factors determine the potentialities for characterologic development. The end result of these factors in the psychopathic personality is the formation of pseudo values and pseudo goals.

Cleckley [1] attempted a reformulation of the concept of psychopathic personality. He held that there was a clear-cut clinical entity properly termed psychopathic personality which was not given sufficient description or emphasis because the concept was cluttered up with extremely diverse and unrelated deviations of other types. Cleckley stated that the complete psychopath was really psychotic, but maintained a "mask of sanity."

Thought processes, verbal and facial expressions of emotion in appropriate situations gave the impression of normality but his behavior in the practice of actual living demonstrated conclusively that these forms were basically meaningless to him. Experience as a whole could not be grasped or utilized in its full significance. This, Cleckley interpreted as a selective and far-reaching dissociation involving primarily emotion and, more indirectly, purpose. The persistent maladaptation and purposelessness of behavior were viewed as comparable to tantrum-like reactions of a spoiled child, who bumps his head against the wall or holds his breath until blue in the face when he is balked. In other words psychopathy should be considered regressive in nature. These two processes, dissociation and regression, do not come about as a sudden personality change but are gradually evolved. In early life there are often evidences of faulty personality reactions. The faulty psychobiologic development may take place for years without any observable signs. In general, Cleckley stressed the point that these people are severely ill and should be treated as such and prevented from endless repetition of socially undesirable and dangerous acts.

No one of these descriptions and explanations is fully satisfactory either as to the origin or essential psychodynamics of the psychopath. Many who have considered the nature of the psychopathology of the psychopath have emphasied two facts, poor heredity and inadequate physical constitution. As a usual thing, when the family history of the psychopath is investigated many more than the ordinary number of mentally abnormal relatives are found. These relatives are diversified so far as diagnostic groupings are concerned. It is as if the psychopath carried a wide variety of genes which are associated with different abnormalities. In similar fashion there is a lack of specificity with respect to the physical inadequacy. Generally speaking they are characterized as "poor physical specimens." Both of these observations have to be qualified since some psychopaths do come from good family stocks and some are of fine physical constitution.

There is no known organic pathology or physiological deviation to which psychopathic personality can be attributed. There are, however, some recent interesting findings with respect to electroencephalograms of psychopaths. Several different investigators [6] have found abnormal brain waves in 50 to 65 per cent of psychopaths that they have studied. For example, it was reported that 65 per cent of a group of predominantly aggressive psychopaths had abnormal records in contrast to 32 per cent of a group of inadequate psychopaths. Others [11] reported a close relationship between abnormal brain-wave records and clinical records of poor ethical standards, aggressiveness, and irresponsibility, while those psychopaths who had symp-

toms of the psychoneurotic or cyclothymic type gave normal brain-wave recordings.

In general, the research on brain waves fits in with the earlier findings that many behavior problem children (to whom psychopaths bear obvious similarities) have abnormal brain waves.[7] The results are also pertinent to the established fact that behavior deviations similar to those found in psychopathic personality occasionally occur subsequent to head injury or encephalitis in persons who have previously shown no psychological deviation. However, in psychopathic personality there is no sudden change in character such as takes place in these injury or infection cases, but the deviations seem to be a consistent part of the whole pattern.

From the therapeutic angle, psychopathic personalities are extremely difficult cases and in the long run prove to be disappointments to anyone who tries to reform or reeducate them. They differ from the neurotics who seek help in that the psychopaths do not feel that treatment is necessary or desirable. It is usually under the constraint of friends and relatives or as an escape from some specific social or legal entanglement that they come to a therapist for treatment. They are the clients of the courts, reform schools, and prisons. Occasionally, some psychopathic personality may be an eccentric, creative genius who makes a great contribution to art, science, or literature and occasionally a psychopath leads the world to war with his fanatic, irresponsible, unscrupulous behavior. *Psychopaths are trouble-makers and disturbers of the peace.*

Summary

In spite of all efforts to bring some understanding and systematic viewpoint to bear on this group of abnormal persons, little more than descriptions of individual cases is possible. These persons are not mentally defective or insane in the usual sense of the terms. Their behavior is unusual, impulsive, immature, irresponsible, asocial, or antisocial. The individual himself may or may not realize that his behavior is inadequate. He can offer little more than excuses as explanations. He neither wants nor considers necessary extensive psychotherapy. He may accept help in a passive way for some immediate problem. Therefore, it is only in very exceptional cases that any real, lasting benefit has been reported as resulting from any form of therapy.

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SECTION THREE
EXPLANATIONS

Chapter 19 *Heredity*

THE PSYCHOLOGICAL CONCEPTS OF ABNORMALITY, AND THE DESCRIPTION of certain of the various forms of abnormal behavior have been presented. The major varieties of abnormality have been described. Recall for a moment the varieties of abnormality which have been discussed, and note that some of these varieties were clearly disease processes in the usual medical sense; others were legal concepts; others were precipitated by personal actions or outside agents; others were associated with natural developmental or degenerative processes; others arose from the basic personality structure; and still others did not fall clearly into any of these classifications.

So far then, there have been presented gross pictures of the abnormalities as they occur and as they are seen by others or experienced by the individual. Given briefly, wherever possible, have been various findings and theories which have been advanced to explain the conditions, without implication that a final, universally accepted explanation was at hand. The reader may quite legitimately be puzzled, by this time, by the lack of any agreement among the explanations. He may feel that many of the explanations are unsatisfactory and that the often made statement that the essential nature or cause of the disability is unknown is even more unsatisfactory. To meet this objection, wherever possible, this and the succeeding four chapters will be devoted to the consideration of the problems of basic explanation.

The question of the relative roles of heredity and environment in determining human behavior constitutes a point of controversy in both the biological and social sciences. Time after time leaders of thought, well qualified to express themselves in this particular controversy, have pointed

out that there can be no solution to the problem so long as it is posed as though heredity and environment were completely independent entities. Actually, heredity cannot exist without environment, or environment without heredity.

All animate existence is dependent upon heredity. No individual organism exists save through a process of hereditary transmission. This particular process varies somewhat in its detail and complexity among various living organisms, but the essential scheme remains the same. From this point, some authorities proceed to emphasize the evidence and logical deductions which have convinced them that all forms of human abnormality are strictly governed by the laws and forms of organic inheritance. Certain of these authorities hold to what one may call a theory of mechanistic evolution. According to this concept, all variations are mechanically and inevitably produced, and no circumstance or human action can change the rigid predetermination of the course of existence. Abnormality is merely the name given to one form of mechanically determined variation. Others hold to a theory of "emergent" evolution, in which emphasis is placed on the fact that new forms and new variations do occur in a fashion which is essentially unpredictable. New forms are continually occurring or emerging, so that new types of human abnormality may be the result of the emergent evolutionary processes.

In contrast to the hereditary or genetic point of view, there is a sociological or cultural viewpoint which claims that all forms of human nature, both normal and abnormal, are due to environmental, social, or educational circumstances in the life of each particular individual. The similarity in final form among individuals results from similarity in these circumstances. These writers believe that heredity operates only in the determination of the general form and physique; for example, white, Negro, tall, short, blond, or brunette; but after these basic qualities have been laid down at the instant of conception, all remaining variation during the life of any individual is determined by such factors as nutrition, education, social pressure, cultural surroundings, and so on. Watson probably made the most extreme statement of this viewpoint, as follows: "Give me a dozen healthy infants, well formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant, chief, and yes, even beggarman and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors." *

A more constructive and illuminative viewpoint lies between that of the

* J. B. Watson, *Behaviorism.* New York, Peoples Institute, 1924, 82.

strict geneticist and the overzealous environmentalist. Here the claims and explanations, the facts and theories, the phenomena and speculations of both schools are appraised and coordinated, with an eye to the use of the best from the two approaches. This may be called the "developmental approach." By development, in this sense, is meant the reciprocal effect of heredity and environment in the determination of the constitution, the behavior, and the mental life of each being.

In the present chapter we will consider the facts, the laws and the speculations concerning the role played by heredity in the determination of any individual, particularly the abnormal individual.

Heredity

Every human being originates from the union of an ovum and a spermatozoon. The fusion of these two cells into a single cell takes place at the instant of conception. In the nucleus of both the ovum and spermatozoon are minute microscopic, threadlike structures which are known as "chromosomes." As Figure 24 shows, each chromosome has banded areas which are related to the parts which are called "genes." The genes are the carriers of the individual characteristics which determine the fundamental physical and mental differences among individuals. The entire heredity of any person, all that the individual obtains from his ancestry, is present from the moment of conception. After the fusion of the ovum and spermatozoon has taken place, the fertilized cell begins dividing. This process of division always consists of the cell dividing itself into two, each new cell receiving half of the nucleus and the same number of chromosomes and genes that the original cell had. As this process of cell division goes forward, cells take on certain specialized functions, namely skin cells, brain cells, or muscle cells, but in every case the nucleus of the cell carries the same number of chromosomes and, presumably, the same gene construction. In this sense, every single cell of the body is merely a specialized modification of the single fertilized cell which started the life of that particular individual.

At the time of fertilization, the chromosomes from the spermatozoon take up a position in a paired relationship to the chromosomes of the ovum. In this way, part of any individual's heredity comes from the mother and part from the father. Which part of the genes will be obtained from which parent is dependent on a process in which there is a large element of chance. This process results in an individual who is both a blend and a combination of the traits or character of both the mother and the father. Almost an indefinite number of combinations is possible in this blending process, so

that two children of the same parents practically never have the same heredity (unless they are identical twins, who develop from one fertilized ovum). The child receives from the parents the gene combination of his chromosomes, and, so far as we know at present, the physical inheritance is determined by the chromosomal structure of each particular individual. *Heredity is that which is passed (either physical or mental) from parent to child*

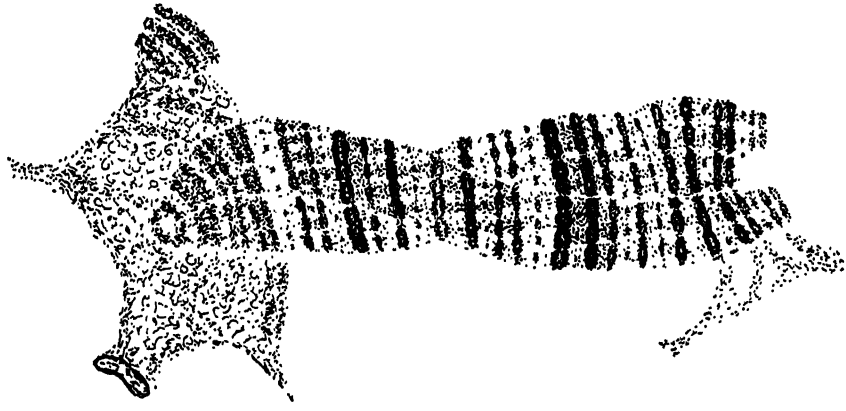


Fig. 24. Drawing of the salivary chromosomes of drosophilia melanogaster.[1]

through the chromosomes and the genes. The genetic constitution of the cell is acted upon continuously by the environment from the moment of conception. The effect of the genetic component and all the given environmental occurrences is to establish the constitution of each particular individual. In this sense, then, the term *constitution* is reserved for *the resultant of the interaction between heredity and environment.*

The existence of hybrids demonstrates the importance of heredity.[21] If a donkey and a mare are mated, the offspring is a mule, even though the environment during pregnancy and shortly after birth is entirely that of the species of the mother, that is, the horse. On the other hand, some environmental conditions during foetal life do affect the offspring. It has been demonstrated that one can irradiate the developing embryo with X-rays, or one can cool the body of the mother markedly for a short period of time early in pregnancy, and the offspring will show pronounced physical deviations from those which would be found if neither X-rays nor cooling had been used. (Such offspring biologists call "monsters.") Hence it is evident that environmental factors, even during the earliest stages of life, are capable of interfering drastically with the normal development of the individual. Fortunately, true human monsters occur but rarely.

It is important to realize that the oversimplified ideas concerning the

independent effects of heredity or environment are no longer tenable. One can no longer postulate that the development of an individual is an unfolding process in which his inherited characteristics determine his entire constitution, or that development is a molding process in which the environment does the work and the individual is practically passive. Actually, the problem concerns itself with the relative effect of maturation versus growth-through-use.

By *maturation* is meant the sort of development which occurs any time during the life of the individual and which does not depend directly upon use, function, or characteristic activity of the organism or any part of the organism. *Growth-through-use* means, as the phrase implies, the sort of development which takes place in habit formation after exercise, and through learning or thinking. These are separate and distinct developmental processes, as has been experimentally demonstrated.

The phenomenon of maturation is not necessarily due to an increase in size or function of the organism. Rather, it accompanies the process of cell differentiation. Very shortly after conception and during the early stages of cell multiplication, certain cells tend to assume specialized functions, while some tend to grow more rapidly and to develop in more complicated patterns of relationship than do others. This process has been the subject of a vast amount of research in the science of embryology. The determining factors of this differentiation in function and rate of growth are complicated, but many of them have been experimentally worked out, so that we may accept them as factual.

Growth-through-use or exercise is the normal, common sense view of development that we apply in our everyday thinking. One's muscles become stronger through exercise; by practice one is able to read more rapidly or through the acquisition of skill one can knit more rapidly. Many of us never consider the possibility that this sort of development is related to either heredity or maturation. It has been taken for granted that we have inherited the anatomy of the arms and hands, while the process of knitting is regarded as an acquired ability based on adequate muscular coordination. That this is not entirely true is apparent when one considers the knitting done by a small child. The arms, hands, and fingers, the muscles and nerves are all present and, as we know, quite highly functional; and yet, the process of learning to knit is very slow and clumsy in the six-year-old, whereas, when the same process is started at age twelve or fourteen, it is much more rapidly acquired. We have, here, evidence of the interaction between maturation and growth in normal development. Experimentation has shown that maturation does not necessarily cease when use begins. Each forward step

in maturation supplies the individual with the basis for new activity and for new learning.

General observations

Heredity, inheritance, and genetics are not usually advanced as explanatory concepts in psychology or in any of the social sciences. Somehow, the notion has spread abroad that any evidence concerning the action of hereditary factors in human affairs makes those affairs hopeless and justifies adopting a fatalistic attitude. This view is so widespread that in much which is written concerning mental hygiene, man has been assumed to be free of all the genetic laws which have been found to govern the predisposition and preformation of all other forms of living organisms. It is true that the earlier applications of genetic principles which were based on simple Mendelian laws were rather inexact and unfruitful in abnormal psychology. For example, an investigation may have shown that neither parent, nor any of the grandparents of a schizophrenic patient was ever schizophrenic. So it was concluded that heredity had nothing to do with the psychosis, and that the basis of the disorder must be sought in the early family life or in the amount of emotional stress which preceded the illness. The fact was overlooked that a recessive genetic characteristic never shows itself in an individual unless the same recessive characteristic is inherited from both parents. Schizophrenia, as a recessive characteristic, could develop only if both parents were carriers. Furthermore it was not generally understood that there was no such thing as inheritance of fully developed characteristics, but only a transmission of predispositions, that is, of specific potential responses to the environment. The fact is that we do not inherit diabetes or dementia praecox as such. What is inherited is the specific capacity for developing a trait or condition, if the necessary environmental conditions should occur. Today there is no reason to deny either genetic, cultural, or developmental factors or forces; rather we should attempt to understand their interrelationship in both normal and abnormal psychology.

Modern human genetics has demonstrated that the factors involved in mental disorders may be either specific or nonspecific * in predisposing any one person to some form of psychopathology. The genetic factors may be related to either the *predisposition* (which provides the basis for and tendency toward a particular form of deviation) or to *preformation* (which

* "Specific factor" means a factor from which some distinct, definite result will occur, for example, blue eyes or Huntington's chorea; "nonspecific factor" means a general resistance or lack of resistance which will facilitate or inhibit the appearance of some condition, for example, physical strength or tuberculosis.

concerns the gradual development in the direction of a particular deviation). A third circumstance acting in the organization of any mental disorder is that of *provocation* (precipitating cause) which refers to its beginning, activation, precipitation, and actual manifestation as we see it in its complete form. The relationship existing among these three areas of genetic influence is complicated and varies among the different abnormalities. It is not necessary for the understanding of abnormal psychology to go into all of the technicalities of biology or genetics, but certain concepts should be clear and these will be taken up in as simple a fashion as possible. Anyone interested in the more exact details of the action of heredity can find the relevant material in any of the more recent books in the field of genetics.

Methods of investigation of heredity in psychopathology

There are three methods by which the contribution of heredity to psychopathology can be investigated. These are (*a*) the pedigree or family-history method, (*b*) the contingency method of statistical prediction of association, and (*c*) the twin-study method.

Pedigree or family-history method

The most obvious method for the study of the possible inheritance of abnormal conditions is the family history. If one could trace through the genealogy of any particular abnormal individual, theoretically it should be possible to find how frequently the same or similar varieties of abnormality have been exhibited in past generations. The most clearcut examples of this type of research are found in the family-history studies of Huntington's chorea, where the presence of the disorder has been traced back for twelve generations and three hundred years. Similar studies have been made of feeble-minded individuals, notably the Kallikak family and the Juke family.

Certain very real criticisms and difficulties are attached to the pedigree studies of abnormal persons. In the first place, most of the diseases or abnormalities, which we regard today as more or less discrete manifestations, are rather recent concepts in the history of human thought. Feeble-mindedness and epilepsy are the only two conditions which have been known in the same general way for any considerable period of our past history. The other classifications of psychopathology, such as manic-depressive insanity, dementia praecox, or psychoneurosis, are based on concepts which have been developed during the last fifty or sixty years. If we should attempt to trace dementia praecox back through generations previous to

1900, we should have to have access to very good case records which would permit us to make a classification entirely on the basis of described symptoms. This is usually an impossible condition, since satisfactory histories are seldom available. Records which do exist were, very frequently, taken in a different conceptual scheme, with emphasis placed on events and symptoms which are unimportant or irrelevant for the present system of classification.

A second difficulty grows out of the fact that mental abnormality has been (and still is) regarded by most people as a disgrace to the family in which it occurs. Hence, many families do everything in their power to conceal the occurrence of mental illness. In particular, they do not inform their children or grandchildren that certain members of the family have had one or another form of psychopathological disturbance. Furthermore, many of these queer relatives were never brought to the attention of public authorities, since they were cared for at home; hence, there is no public record of the abnormality.

Another difficulty in the pedigree method relates to the different standards of abnormality which have prevailed in different communities in times past. For example, an individual who today would be said to be suffering from either simple or hebephrenic dementia praecox might very easily have been thought to be feeble-minded or to have been gifted in piety, if his hallucinations were accepted as the voices of God and the angels. The entire group of symptoms having to do with depression, anxiety, guilt feelings, and the like, were lumped together under the single category of melancholia. All varieties of excitement, elation, agitation, aggression, and overactivity were called mania. Under such circumstances most old hospital records do not give an adequate basis for classification. At the best, then, one can only deal with the histories of certain families, in which the abnormality was fairly constant and clear and of such a nature that it could not be concealed from the general public. These family histories are apt to be incomplete in that many ancestors and offspring who were free from the particular condition broke away from the family and are lost from the records.

In spite of all of these difficulties, human beings have been convinced throughout the ages that certain *abnormalities run in families*. On this one point, popular belief and common sense are clear and definite, and frequently at odds with scientific theories or clinical opinion.

Contingency method

In 1869 Galton [8] first pointed out and made use of both the statistical method and the twin method in the analysis of the heredity of psychopatho-

logical persons. Essentially, the contingency method tests whether two variables are associated. In this case the specific problem is whether certain traits or abnormalities occur more frequently in some families than would be expected by chance. For example, the school achievement of siblings

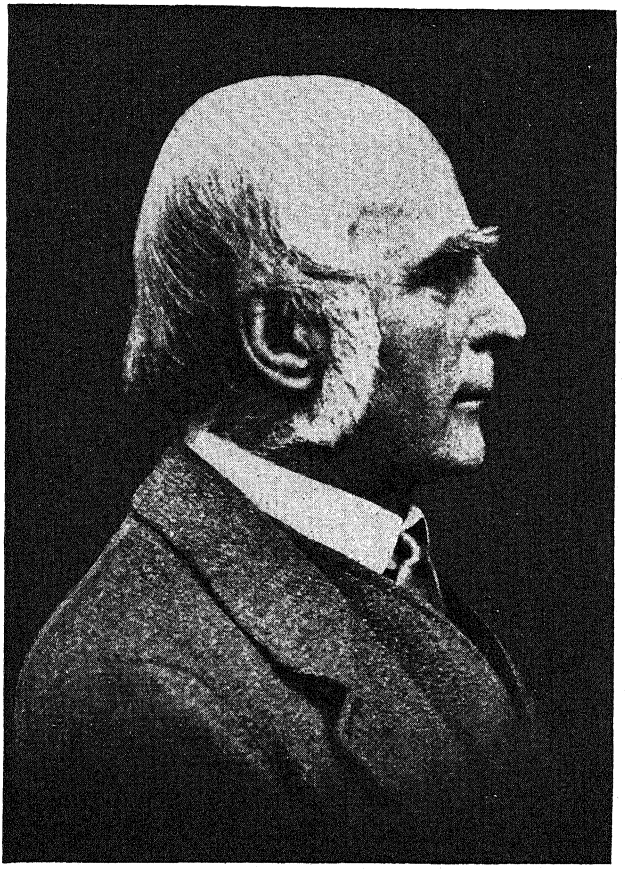


Fig. 25. Francis Galton (1822–1911).

correlates more highly than the school achievement of unrelated persons; the occurrence of catatonic states in child and parent correlates more highly than the occurrence in unrelated persons in two succeeding generations. This method has the advantage of making use of large samples of the general population who are alive and measurable at any one time. Today, the contingency method is used mainly as an auxiliary procedure with either the pedigree or twin-study method.

Twin-study method

The most difficult method to use in the investigation of human heredity, but at the same time the most precise, is the twin method. In the United States identical twins occur about three times out of a thousand births, while nonidentical (fraternal) twins occur about nine times out of a thousand. Identical twins result from a division of a single fertilized ovum at a very early stage in development. Since all cells derived from the same fertilized ovum have exactly the same make-up of chromosomes and genes, the two individuals coming from this single fertilized ovum are exactly alike in their heredity. They are always of the same sex, similar in appearance, have similar fingerprints, and have many other physical and mental similarities. Since they are of identical heredity, any difference which develops between them must be due to some difference in the effect of environment or in the differential rate of growth or maturation. Nonidentical or fraternal twins are derived from two different ova fertilized by two different spermatozoa. Genetically, they are no more alike than any other two siblings. The fact that they are conceived and born at the same time does not make their heredity similar, although their environment both before and after birth has a greater similarity than that of other siblings.

Since identical twins have identical heredity, they constitute ideal material on which to base investigation of psychopathological conditions. Identical twins reared apart form a more crucial group for experimental purposes than any other that can be obtained. In this last instance, we have two individuals with exactly the same heredity, who are subjected to different environments, different nutrition, different training, and different social attitudes. Then, if we compare the variety of psychopathology which occurs in one twin with the presence or absence of psychopathology in the other, we have a practically certain answer to the share and importance of genetics in the formation of the abnormal condition.

The discussion of the biological principles of heredity and of the methods of investigation of human heredity which we have just given has been expressed in simple terms. We have not taken up the nature of the Mendelian laws of heredity, the necessary statistical corrections, the effect of unit characters and of multifactorial influences, and so on. These are all of great importance in the final answers which the geneticist uses to confirm or deny the effect of heredity in psychopathology. It is enough to point out those relationships which have a fair degree of certainty and those in which a great deal of question still remains, without going too far into the details of the evidence.

Heredity in specific forms of abnormality

We must remind ourselves again of the exceedingly complicated nature of human heredity and of the even more uncertain knowledge concerning the true disorder in many of the psychopathological states. Actually, the clearest records of human heredity in morbid conditions have been obtained in studies which have to do with skin disease and abnormalities of the eyes. In either state the tissue or organ involved can be easily studied, treated, measured, or experimented upon. When we contrast this to ear diseases, we at once recognize the difficulties encountered in the latter, since the essential mechanism of the ear is deeply imbedded in hard bone, making it extremely difficult to study even after death. The brain is the primary structure in which the basis of abnormality of behavior or mental life rests. Only under exceptional surgical conditions is the brain ever exposed for direct study. Hence, our conclusion concerning the interrelationship of hereditary, anatomical, and physiological disorders of the brain itself, and their attendant abnormal mental states, depends on indirect evidence.

The following tabulation summarizes the present-day evidence with respect to the predisposing role of heredity in specific conditions:

1. Conditions which are predominantly or completely possible on the basis of predisposing genetic factors: Huntington's chorea, idiopathic epilepsy, dementia praecox, manic-depressive psychosis, mental deficiency (endogenous, but not all special forms).

2. Conditions in which both environmental (development and aging as natural processes) and genetic factors play a part: primary behavior disorders in children, involutional melancholia, senile psychoses, psychoneuroses, anxiety states, hysteria, neurasthenia, tuberculosis.

3. Conditions which are due predominantly or completely to environmental factors and where hereditary predisposition plays very little or no direct part: general paresis, neurosis following trauma, reactive depressions, symptomatic psychoses due to intoxication (including some forms of alcoholism), infections, somatic diseases.

Epilepsy

It will be recalled that the central symptom in this condition is the convulsive seizure. These seizures can be the result of organic injury or infection of the brain or its coverings, of toxic influences, or idiopathic conditions When the family histories of the idiopathic epileptics are studied, we find the following: [10, 12] Epilepsy occurs in four to six persons out of one thou-

sand of the general population. Among the relatives of epileptic patients seizures are reported in 6 per cent of the children, 4 per cent of the siblings, 3 per cent of the nonidentical twins and 67 per cent of identical twins. Migraine, some varieties of alcoholism, and mental deficiency probably have some genetic relationship to epilepsy but schizophrenia has no relationship.

The figures just cited are based on evidence of having had seizures. It is impossible to be sure of the origin, variety, frequency, or severity of the seizures in all of the studies which were summarized to produce the figures. More recently the electroencephalographic studies (Lennox and Gibbs [13]) have put the evidence on a firmer basis. The brain-wave pattern of epilepsy has been found in about 10 per cent of persons who have never had convulsive seizures. This rate is increased to about 60 per cent in the parents and siblings of epileptics and to 80 per cent of epileptics themselves. (About 20 per cent of persons having seizures do not have the epileptic pattern of brain-waves.) Among nonidentical twins where one or both partner has seizures there is a similar brain-wave pattern in 25 per cent of the pairs; in identical twins there is 100 per cent similarity. In idiopathic epilepsy there is a multifactorial genetic mechanism. In "acquired" epilepsy due to head injury or the like, the evidence is not clear. It may be that it occurs only in persons who had the genetic potentiality; or it may be that it can occur in anyone depending only on the nature of the injury.

General paresis

A common mistake, made not only by the general public but by scientists and medical men as well, is to say that syphilis may be hereditary (rather than congenital). There is no evidence that syphilis affects the germ plasm or that it infects the foetus before birth. It is possible for the infant to become infected with syphilis at the time of birth, or from the mother at a very early age. This, of course, is not hereditary transmission but an example of infection or contagion.

There is a possibility that heredity may play a role in general paresis. It is estimated that general paresis occurs in not more than one out of twenty to thirty cases of untreated primary syphilitic infection. What evidence is there, then, that this one case out of twenty has an inherited lack of resistance to syphilitic invasion of the central nervous system? On the basis of a rather small group of identical twins, one of whom had developed general paresis, one investigator [14] concluded that there was a somewhat higher incidence of general paresis in the cotwin than one would have

expected by chance. This study has been criticized, but it remains the only pertinent evidence. In our present state of knowledge there is no conclusive evidence concerning the heredity of a susceptibility to general paresis.

Alcoholic psychoses and alcoholism [5]

There are two general questions relevant to the genetics of the alcoholic person: (*a*) Does parental alcoholism, chronic or acute, cause damage to the germ cells so that the offspring may be "abnormal?" (*b*) Is addiction to alcohol directly transmissible or is there an inherited predisposition which permits an individual to resort to excessive use of alcohol?

When alcohol is imbibed it does go into all bodily fluids and tissues. There is no evidence to show that it damages the germ cells. The number of children born in alcoholic families is greater than the number born in nonalcoholic families of the same social, economic, and educational level. There is no evidence of greater infant mortality in alcoholic families than in nonalcoholic of the same social, economic, and educational status. The germ cells are so well protected against damage by high concentrations of alcohol that the father or mother would be dead as a result of the high concentration before the germ cells could be injured.

Studies of alcoholic psychotics show that 62 to 82 per cent have "tainted heredity"—the nature of the taint on which the percentages were based was various and not specifically alcoholism. In nine studies of alcoholic persons (not psychotic) the per cent of tainting varied from 32 to 48 (average 37). Again the tainting was nonspecific. Viewing these figures from another angle one could emphasize that no evidence of tainting was obtained in well over half of inebriates. However, it seems possible that the figures do indicate that some sort of a predisposition is inherited. That the predisposition is not specific was indicated by an investigation [17] that showed that the children and grandchildren of alcoholics admitted to mental hospitals do not succumb to alcoholic addiction themselves to any greater extent than one would find in a random population. This statement has to be qualified by pointing out that only alcoholic patients who were suffering from some other form of mental disorder, such as dementia praecox or epilepsy, were included in the study. If the alcoholic patient comes from a family in which there is some psychopathological disorder in addition to the alcoholism, then the same per cent of the offspring will show the mental deviation, schizophrenia, epilepsy, or the like, that one would find in the particular defective stock of which he is a member.

Senility

In an investigation of aged twins, Kallmann and Sander [11] have recently made a first report on 1602 individual twins aged between 60 and 102 years. They report that many physical and psychological similarities between identical twins have a tendency to persist throughout life. The ability to survive to an old age is genetically determined. Whether one survives is determined by many environmental factors, disease, nutrition, vocation, accidents, and so forth. Senile dementia depends first on the inherited ability to survive and second, on the circumstances that the patient has lived through together with the immediate circumstances which have surrounded him shortly before the onset of psychotic manifestations. It is true that death from arteriosclerosis (not necessarily cerebral) does seem to run in many families. Since arteriosclerosis is a terminal condition reached only by those who have survived all other hazards of life, it probably is a combination of genetic and environmental factors that are operative here in the same way that seems to obtain in senile dementia.

Neurological diseases

There is the widest sort of difference among the various neurological diseases with respect to heredity. Some conditions, such as Huntington's chorea and Pick's disease, show clear and undeniable evidence of specific heredity. Others show a combination of hereditary vulnerability to certain infections which are effective only in the more susceptible cases. At the other extreme we have diseases such as poliomyelitis which operate seemingly without respect to any known hereditary factor of resistance or susceptibility.

Feeble-mindedness

The first extensive survey of the causes of feeble-mindedness, made by Goddard,[4] led him to conclude that feeble-mindedness had a specific hereditary determination (probably a unit recessive gene). Today, it is generally agreed that the level of intelligence (insofar as it is genetically determined) is brought about by the interaction of many unit factors operating together in the heredity of the individual (multifactorial inheritance). The endogenous group of feeble-minded (primary or familial type) represents the lower end of the normal distribution curve of intelligence. The defective intelligence of this group results from the action of many genes,

each having individually small effect. That certain types of familial mental deficiency run in families has been established by numerous family surveys such as the histories of the Kallikaks, the Jukes, and the Namms.

There are many cases of mental deficiency which cannot be attributed to heredity, but which depend upon various factors in the developmental history, or injuries sustained during the process of birth. These cases are more apt to be idiots or imbeciles, whereas most of the endogenous group fall in the moron levels of intelligence. Among the very low-grade mental defectives are found some cases (a very small proportion of the whole group) which are determined by specific heredity. In these, the geneticists believe there has been a transmission of single abnormal genes which render normal development impossible. Although these genes can be regarded as only one of the determining causes of the mental deficiency, they are the essential factor, without which the abnormal condition would not have occurred.

Psychoneuroses and psychopathic personalities

If we lump together all persons from these two groups who could be characterized as psychologically and constitutionally inadequate individuals who suffer from simple anxieties, phobias, hysterical manifestations, weak will, or indecisiveness, then there seems to be a multifactorial genetic mechanism giving rise to the inadequacy. No single gene is specific but particular combinations permit various degrees of vulnerability to succumb to environmental stress. That there is a tendency to particular combinations is shown by the fact that one investigator [2] found that among neurotic patients 15 per cent of anxiety states and 7 per cent of hysteria and obsessional states had one parent who had a similar neurosis.

In contrast to the inadequate group, a second group is made up of individuals who resemble schizophrenics, manic-depressives, and certain of the epileptic patients, so that we may speak of neurotic or psychopathic persons having schizoid, cycloid, or epileptoid tendencies. These individuals probably come from schizophrenic, manic-depressive, or epileptic family strains. In them the hereditary predisposition to the disease process has not completely expressed itself in the physical constitution and personality make-up of the individual.

The hereditary tainting in psychopathic personalities is commonly stated to be greater than that of any other of the mental disabilities. When one remembers that the group of psychopathic personalities is made up not only of mental hospital patients exhibiting various forms of social and

emotional maladjustment, but also of criminals, fanatics, and eccentrics in general, it is not surprising that the family-history investigation has shown so many deviants and defectives in the blood relationship.

An example of psychopathology commonly thought to have an hereditary component, but which does not, is suicide. The investigation of suicide in twin pairs, alike in heredity, personality, social and educational background, as well as in psychosis, showed that self-destruction is either extremely rare, or never occurs in both twins.[8]

Dementia praecox

One fifth of the first-admissions and half of the resident population of mental hospitals suffer from dementia praecox. Since this is the largest group of hospitalized mentally disordered persons, the operation of heredity in the group has been intensively investigated. It has been established that a minimum 0.85 per cent (85 persons in 10,000) of the general population are suffering from schizophrenia at any given time. Surveys starting with individual schizophrenic patients show that on the average 3.9 per cent of nieces and nephews will have been schizophrenic, 2.6 per cent of first cousins, 4.3 per cent of grandchildren, 7.6 per cent of half-siblings, 10.3 per cent of parents, 11.5 per cent of full siblings and 16.4 per cent of the children will have been similarly affected.[7] These findings are illustrated graphically in Figure 26.

When schizophrenia occurring in one or both of the twins was investigated with respect to resistance to the disease, course of the disease, and having had a similar or dissimilar environment for five or more years before the onset of the illness, the figures in Table 8 were obtained.

As the ratios given in Table 8 show, similar behavior in schizophrenia is about eighteen times more frequent (55 to 3) than dissimilar in identical twins, although dissimilarity predominates 3 to 1 in fraternal twins. These ratios indicate that the genetic resistance to the disease is nonspecific and multifactorial.

Additional evidence concerning the relative importance of heredity and of childhood home background, as causative factors for schizophrenia, has been given by Kallmann [6] with respect to the half-brothers and half-sisters of schizophrenic patients. In those instances where the common parent of the half-brother or half-sister and the original patient was schizophrenic, there were 5 out of 21 instances in which the half-brother or half-sister was also schizophrenic, which is almost the same figure as that found among ordinary siblings. In those cases where the half-brothers and half-sisters

were not related through a schizophrenic parent, only 1 case out of 58 showed schizophrenia, which rate is close to the normal chance expectancy. This bit of evidence indicates that the inherited predisposition must be

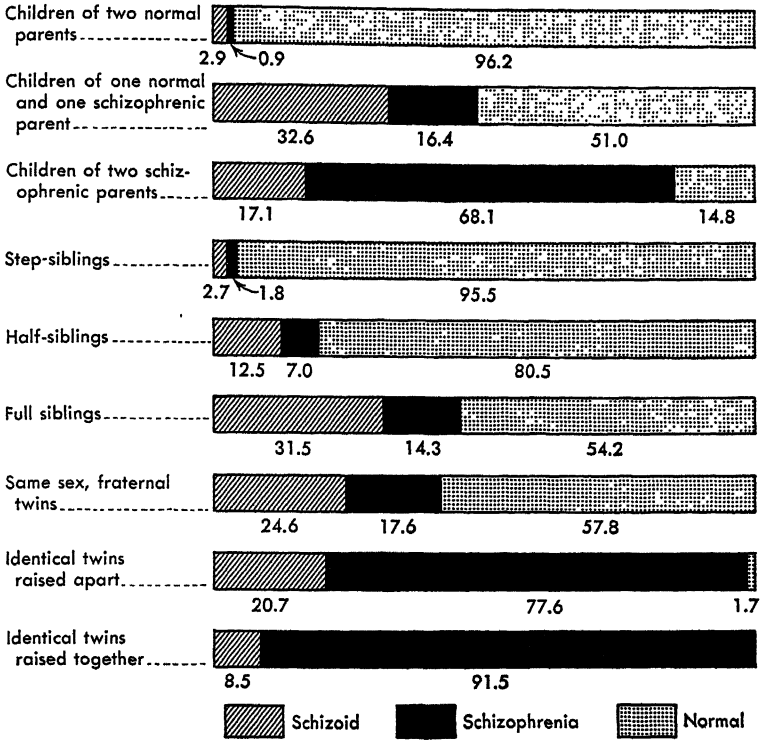


Fig. **26.** Expectancy of schizophrenia and schizoid personality among various degrees of familial relationship. (Based on data obtained by twin-study method.) [7]

present for the development of the disease, no matter what the childhood home environment may have been.

The following history of identical twins who were reared apart and who both developed dementia praecox is illustrative of the effect of genetic predisposition.

CASES **24–25:** Miss Anna T and Miss Emma T were born in 1894, the only children of a poor farmer who was described as pleasant, although emotionally unstable. Their mother developed a psychosis immediately following the birth of the twins, and died of pulmonary tuberculosis when the twins were nine months old. Because of the mother's mental state, a paternal aunt took them into her home when they were only a few weeks old, and kept them for about two years. They were about the same weight at birth and equally strong and

healthy as babies. In childhood and as adults, they were physically so much alike that they were frequently mistaken for each other. Neither had any serious illness or accident throughout childhood. Anna has always been slightly taller and heavier. At present she is ¼ inch taller and weighs 2 or 3 pounds more than Emma.

Shortly after the twins' second birthday, the father remarried and moved to a farm in the Middle West. He took Anna with him while Emma remained with

Table 8. Variations in resistance to schizophrenia in twin pairs.*

DEGREE OF RESISTANCE TO SCHIZOPHRENIA	CLINICAL BEHAVIOR IN SCHIZOPHRENIA IN TWIN INDEX PAIRS		NUMBER OF TWIN PAIRS	
	First twin Clinical classification	*Second twin* Clinical classification	Identical	Fraternal
Complete dissimilarity	Extremely deteriorating type of schizophrenia	No schizophrenia despite similar environment	0	91
	Extremely deteriorating type of schizophrenia	No schizophrenia with dissimilar environment	0	62
Less complete dissimilarity	Extremely deteriorating type of schizophrenia	Schizophrenia with little or no deterioration	9	21
	Schizophrenia with medium deterioration	No schizophrenia (regardless of environment)	0	197
Complete similarity	Schizophrenia with little or no deterioration (recovery)	Schizophrenia with little or no deterioration	19	2
	Schizophrenia with medium deterioration	Schizophrenia with medium deterioration	33	0
	Schizophrenia with extreme deterioration	Schizophrenia with extreme deterioration	29	1
Less complete similarity	Schizophrenia with little or no deterioration	No schizophrenia	54	120
	Schizophrenia with medium deterioration	Schizophrenia with little or no deterioration	20	14
	Schizophrenia with extreme deterioration	Schizophrenia with medium deterioration	10	9
Total number of pairs	All dissimilar pairs		9	371
	All similar pairs		165	146
	Grand total		174	517
Ratio	No schizophrenia to extremely deteriorating schizophrenia		0:174	1:2.5
	Dissimilar resistance to similar resistance		3:55	3:1

* From F. J. Kallmann, "The Genetic Theory of Schizophrenia," *Amer. Jour. Psychiat.*, 1946. *103*, 309–321.

the aunt, who treated her like her own child although she had three older children of her own. The twins liked their foster mothers fairly well and were easy to handle as children. They did not see each other between age two and age fourteen, and after that only a few times, and never for more than a few days. Anna grew up on a rather isolated farm without the companionship of other children. Emma grew up in a moderate size town in New York State, in a family with other children. The family was of relatively better social and economic standing than the one in which her sister was raised.

Anna finished the eighth grade in a country school near the farm and afterward worked as a domestic, taking a sewing and dressmaking course in the evening. Emma completed high school at eighteen, taught in country schools for several years, and at twenty-two opened a stationery store in one of the suburbs of New York City. Both twins developed average intelligence, but were said to be rather shy and reserved. They were both active in church work, fond of outdoor life, and very musical, although only Emma took music lessons. Neither became actively interested in the other sex, although both were described as attractive.

A definite change in personality was observed in both twins at about their twenty-fourth birthday. The development of active psychotic symptoms was more rapid and noticeable in Emma, who was living in, and adjusting to, urban surroundings; while Anna was able to take refuge on her father's farm for a while.

During the first months of her twenty-fourth year, Emma stopped working in the store, became untidy in her dress, and secluded herself for days in her room. She began to talk at length about mental science, hypnosis, and thought transference. She believed that people were talking about her, so that she developed delusions of a persecutory nature. She was admitted to a New York State mental hospital at age twenty-six. At that time she was described as careless in her appearance, apathetic, delusional, and actively hallucinated. Her psychosis progressed rapidly, and for the past twenty years she has been in a chronic advanced stage of mental deterioration.

Anna gave up her last housekeeping job during the summer of her twenty-fourth year and remained idle on her father's farm until her admission to a midwestern state hospital five years later. During these five years she was described as irritable, suspicious, sarcastic and seclusive. She had visual as well as auditory hallucinations, frequently striking at something in the air and complaining about snakes. She expressed delusions of a sexual, religious, and persecutory nature. On admission to the mental hospital, she was noisy, abusive and assaultive; she barked like a dog, tore her clothing, and believed that there were snakes all about her. Her psychosis remained in this active state for several years, and then progressed into a chronic advanced stage of mental deterioration comparable to that of Emma. Both twins are still resident in mental hospitals.*

* Histories obtained by Dr. F. J. Kallmann and are presented with his permission.

We have here two identical twins who were separated at the age of two years. They showed very similar schizophrenic psychoses at twenty-four which led to an advanced state of mental deterioration in both of them. This process developed despite wide differences in their environmental, social, and educational histories.

In order to clarify, by contrast, the relative roles of the hereditary predisposing factor of physical constitution and of environment, we cite the following histories:

CASES **26–27:** Two nonidentical twin girls were exposed to the same, extremely unfavorable, childhood experiences. They were only two years old when they were abandoned by their alcoholic and probably psychotic mother. They were brought up together in various charity homes and orphanages. At about age ten they were returned to their father who was a brutal, shiftless drunkard. They were badly mistreated by their stepmother who finally deserted them declaring that they were equally unmanageable and mentally retarded children. At the age of thirteen they were both sexually assaulted by the father and were then sent to an institution. Shortly afterwards, an acute and definitely deteriorating dementia praecox process manifested itself in the physically inferior and less mature of the twins. The other twin, who was five inches taller and almost thirty pounds heavier at age fourteen, continued to develop normally, seemingly unaffected by her almost unbelievably bad childhood environment, the sexual assault of her father, and the psychosis of her twin sister. In this case, it would seem that the stronger girl was protected from the disease either by a lack of a specific inherited predisposition, or because of her stronger physical constitution in comparison to her psychotic cotwin.*

Manic-depressive psychosis

Various investigators have shown that a minimum of 0.44 per cent (44 persons in 10,000) of the general population develop manic-depressive psychosis. Among the close relatives of manic-depressives, the expectancy rate runs much higher than this figure. Starting with individual manic-depressive patients, 12 per cent have parents who were manic-depressive, 9 per cent of the children, 9 per cent of siblings, 2 per cent of nieces and nephews, 5 per cent of aunts and uncles, 3 per cent of first cousins, and 1.4 per cent of half-siblings had the same condition.[18] In a study of 23 pairs of identical twins, Rosanoff [19] found that in 16 pairs (70 per cent of the pairs) both members were affected by manic-depressive psychosis; while in

* This history is quoted in shortened form from: F. J. Kallmann and S. E. Barrera. "The Heredoconstitutional Mechanisms of Predisposition and Resistance to Schizophrenia," *Amer. Jour. Psychiat.*, 1942, *98*, 549.

the remaining 7 pairs only one member was affected. That these are minimum figures was shown by a study of the case histories at a long established private mental hospital which had cared for succeeding generations of family groups for more than a century and a half. Figure 27 illustrates

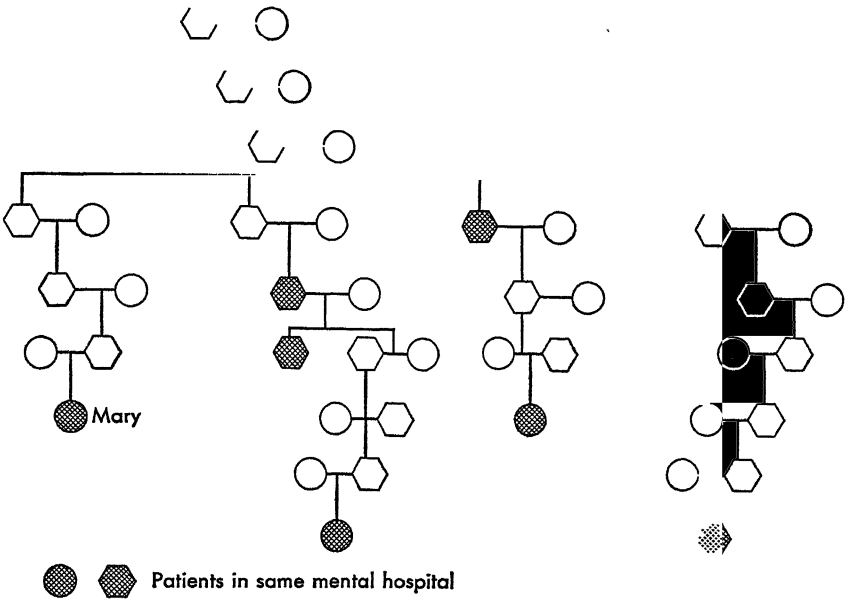


Fig. 27. The family tree of a manic-depressive patient, Mary, admitted to a private mental hospital in 1852 at age 21. It was noted on her hospital record that "insanity is not hereditary, none of her ancestors on either side have been affected by it." Yet a search of that hospital's records disclosed that six of Mary's relatives had been patients in that hospital and the records of the Probate Court of her home county showed that thirty-five others of her family stock had been declared insane in past years. (Diagram redrawn from Myerson and Boyle.)[15]

the point that although the family history was well known at the hospital the individual record had indicated that there was no hereditary tainting.[15]

The present evidence indicates that manic-depressive psychosis is based upon several, or even many, genetic factors which must operate together to produce this predisposition. When this multifactorial condition does obtain, the disease appears more clearly and regularly than is true in dementia praecox. One may assume that, if the hereditary mechanism of manic-depressive psychosis is present, it is more or less completely specific in its effect. Therefore, it is more apt to lead to overt expression of the psychosis in the life history of the individual, than is the predisposing mechanism of dementia praecox.

The role of heredity in manic-depressive psychosis is illustrated by the following history of a pair of identical twins who were reared apart:

CASES **28–29:** Mrs. Mary R and Mrs. Molly N were born in 1889 on an upstate New York farm of English-Dutch descent. There was no history of mental abnormality in the mother's family, but many instances of personality deviation were present on the father's side (moodiness, phobias, depressions, dipsomania, and one suicide). These identical twins were the youngest of ten children. Their delivery was normal, weight at birth being 4 pounds, 6 ounces each. During a normal early childhood, they were mistaken, each for the other, even by their parents and siblings. There were no accidents or serious childhood diseases, so that they developed normally, seeming to be equally strong and healthy and having the same habits and friends in childhood.

These twins lived together until the age of eight and were considered inseparable. Illness of the parents made the removal of the twins from the farm advisable. Molly refused to leave but Mary was taken to live with an older married sister in another town. She remained there for several years, and then was taken into the home of an elderly, childless couple who practically adopted her. At age ten their mother died, and at fourteen their father. Mary returned to the farm only once or twice for a very brief visit before the death of her parents, and following the death of her father saw her twin sister only on very rare occasions.

Molly remained on the farm of her parents until her marriage to a farmer at age twenty, when she moved to another farm. She had two children and adjusted without difficulty to the quiet, frugal, laborious life on a prosperous but secluded farm, which she rarely left.

Mary graduated from high school, took normal-school training, and taught in various schools until her marriage at age forty-seven to a retired engineer. She was active in politics and church matters. She traveled extensively and spent four years as a missionary in China. Her marriage was childless and unhappy, ending in divorce within a few years.

Despite the twins' separation at age eight, their mental and physical development showed no significant differences when they were seen at age fifty-two. Both were rather strong and heavy set. Neither smoked nor drank. Mary was quite outspoken in her opposition to smoking and drinking. Both were of the same height, while Molly's usual weight exceeded that of Mary by 20 pounds. Neither had had a serious illness, accident, or operation.

At age thirty-seven Mary developed her first psychotic episode while teaching in a missionary school in China. She attributed this to "sunstroke." She was overactive, irritable, fault-finding, and talked about various things at the same time and without interruption. For several weeks she was so restless that she neither ate nor slept. Following this excitement, she became moody, worried, and indifferent, so that she had to be sent home to the United States where she

made a gradual recovery. She has had four episodes of comparable intensity and duration between 1937 and 1942, while minor spells occurred every few months, lasting only a week or so.

Molly had her first psychotic attack at age thirty-seven, without apparent provocation. She has been hospitalized only twice. Following several minor depressive episodes, which were distributed over more than three years, each lasting one or two weeks, her most severe manic attack developed at age forty-three. She suddenly became voluble and "talked more in an hour than she ordinarily did in a week." She showed expansive interests, greatly increased activities, and a marked flight of ideas. She visited neighbors that she had never talked to before, neglected her household and farm, and wandered aimlessly about the countryside. When admitted to the hospital, she was restless, aggressive, and uncooperative, but after a few days, she began to quiet down. She was discharged in a much improved condition and readily resumed her responsibilities at home. She has gotten along fairly well ever since, except for short depressive periods.*

We have, then, typical manic-depressive psychoses occurring in identical twins who had been separated at age eight. They were very much alike as to personality and outlook on life in spite of their separation. Their mental disorder was of much the same nature, although the first episode occurred in the one while she was a missionary in China, and in the other during the same year while she was a farm wife in New York State.

Summary

It has been shown that in some of the mental disorders, heredity plays little or no role, in others an intermediate role, and in still others, it is an extremely important predisposing or determining factor. An attempt has been made to classify the extent to which the various specific forms of abnormality may be related to hereditary predisposition, constitutional preformation, or environmental provocation. This analysis provides a better degree of comprehension and understanding of the importance of heredity in abnormal psychology.

Mental disease runs in families. This simple statement has been part of common knowledge for centuries and is one to which very few ever take exception. Mental abnormality does not occur in all families. Mental abnormality does not occur in every branch of certain families in which mental deviations are prevalent. Abnormality may occur in one member of a family in which such a condition has not been observed in any other member for several generations past. The question of isolated instances of abnormality, in which there is no indication that the abnormality had any basis in the

* Histories obtained by Dr. F. J. Kallmann and are presented with his permission.

known family history, must be mentioned; for example, sometimes a feeble-minded child is born into a family in which all living members are of normal intelligence and in which no feeble-mindedness has been manifested during several generations past. Such isolated instances may be due to a variety of circumstances. They may be due to the fact that both parents were carriers of recessive genetic determiners. They might be due to the occurrence of a biological mutation, that is, a new biological deviation occurring in a hitherto clear heredity. They may be due to malnutrition. They may be due to actual physical injury. They may be due to some maternal illness during pregnancy, or they may be due to a variety of other obscure causes of a genetic or nongenetic nature. Many such instances may come under the heading of provocation in the scheme which we have mentioned previously.

All investigation indicates that each form of psychopathology must be separately studied before any precise statement can be made as to the importance or lack of importance of genetic factors in each particular syndrome.

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SECTION THREE
EXPLANATIONS

Chapter 20 *Culture and Environment*

AFTER CONSIDERATION OF THE GENERAL ACTION OF GENETIC FACTORS which operate as a "permissive" basis for abnormality, a survey of the effect of physical and social factors surrounding all human beings which have been said to be related to psychopathology is next in order. It seems obvious that man is affected by weather, working conditions, schooling, religious training and belief, family circumstances, the rules, customs, laws, manners, and taboos of his associates; in brief, by the world in which he finds himself. Some forms of mental abnormality seem to be quite independent of the world about the patient (for example, Huntington's chorea). Other forms seem to depend completely on the interaction of the individual and his world (for example, suicide). Between these two extremes lie all other forms of psychopathology, depending on the interaction of the potentialities of the developing organism and the pressures of the environment. An illustration of this interaction is the genetic predisposition to schizophrenia, in which the physical status or state of nutrition and the customs, beliefs, and taboos of the individual all enter into the clinical picture presented by each dementia praecox patient.

Cultural factors play a very important role in the determination of individual personality. The way any person responds socially depends on the situation at a given instant. After all, even the most bizarre hebephrenic or anxious neurotic is not "psychopathological" all of the time or in every situation. Most of his personal reactions (eating, sleeping, bathing, and the like) are not abnormal and many of his interpersonal reactions are not abnormal. It is but a fraction of the behavior, and that fraction is largely social behavior, that leads to our judging anyone as mentally deviant.

Man is a social being and a large portion of man's necessary life adjustments grow out of his being a member of a social group. Social existence

makes certain demands and creates certain problems for the individual; social forms and customs prescribe the way in which these problems must be handled to avoid conflict with the society. The manner in which biological needs may be satisfied or partially satisfied is prescribed by the culture. The attitudes, beliefs, and habits of thought and action of any individual are greatly influenced by the social and cultural environment in which he grows and develops. He is punished, rewarded, instructed, and encouraged to imitate certain other individuals. His ideas of what is good, desirable, and valuable are gradually and continually developed through the processes of social intercourse. The role of the individual in his social context changes at different age levels, from early childhood and adolescence to adult life, and the individual develops techniques to fit these roles. Social techniques appropriate to one age level or role will not be adequate at a later stage of development. At a given period the individual's social techniques may be faulty for several reasons. He may have been suddenly placed in a strange new role, for which the social techniques previously adequate and successful are not appropriate. Or, the course of development may have been such that one technique was emphasized at the expense of others, so that he is limited or rigid in the matter of response. The concept of social techniques can be applied to both normal and abnormal personalities. Some individuals belonging in the latter group never develop true social techniques, others have faulty techniques. The mature and integrated individual analyzes a given situation, and from previous learning assigns respective roles to himself and others and uses the social techniques which fit the roles, while the neurotic person frequently attempts to force situations and persons into certain roles regardless of the circumstances.

Culture and personality formation

Some sociologists and cultural anthropologists have advanced the hypothesis that much of psychopathology (particularly neurotic conditions) may be culturally determined. They have also advanced the idea that standards of normality and abnormality have meaning only in reference to the accepted behavior of particular cultural groups. To conceive of cultural influences as the primary "cause" of psychopathology is to accept the viewpoint that mental deviation is environmentally determined and that mental "disease" is a misnomer. In order to understand and evaluate this hypothesis the relationship between culture and personality formation must first be considered. Those who emphasize the social and cultural determinants of behavior usually tacitly assume that the individual personality is passively

molded by the culture. All of the studies of child development indicate that the infant is not a mass of protoplasm subject to specific cultural molding processes in a passive fashion. The individual is not passive in relation to these pressures but reaches out, accepts, rejects, compromises, and integrates. There are constitutional differences, visible even at birth, in the way in which the individual responds to any specific aspect of the culture.

Despite these critical comments both sociological and anthropological studies have added to our understanding of abnormal human behavior, particularly when they were correctly fitted with adequate descriptive and experimental studies of abnormal psychology. Studies concerned with the contrasting of different types of cultures have shown that many of the factors which were thought to be basic to human nature (that is, instinctive and unlearned) are actually a product of the particular cultural circumstances that surrounded the developing individual. When our knowledge is restricted to the forms of our own culture, we have no way of knowing which aspects of our psychology are fundamental and which are a product of our particular environment and culture. By comparing different cultures, anthropologists have shown that only certain broad human needs are universal, and that these may be expressed and satisfied in widely different ways. Even the universal drives of hunger, sex, and the avoidance of pain have no constant pattern of expression. There are cultural groups in which prolonged, voluntary fasting, celibacy, and self-torture have a definite place and are considered socially desirable goals.

Kardiner [8] has worked out, in part factually and in part by speculation, the relationship between the various cultural institutions and the personality reactions of the individuals living in those cultures. He distinguishes between primary and secondary institutions. The primary institutions are those which create the basic and inescapable problems of adaptation. Among them are family organization, subsistence economy, sex taboos, and the discipline systems, such as the care, feeding, and training of children. These institutions tend to shape any person's basic personality structure through a conditioning process which is most effective during the early formative years. The adaptation to primary institutions sets up secondary institutions, examples of which are techniques of thinking, attitudes toward objects, security systems, and systems of beliefs and ideals, such as rituals, folk tales, and taboos.

The primary and secondary institutions in the culture will determine what the individual values, strives toward, is ashamed of, or fears; the overt forms of expression of love, grief, pleasure, and sexuality. The way in which an individual views himself and others around him is patterned largely by

the secondary institutions of the culture to which he belongs. By both conscious and unconscious imitation, he acquires these forms of expression because he is a member of society, raised in a particular type of family constellation, and conditioned to certain disciplines.

It has been shown that the repressions which are imposed in different cultures are not the same. All cultures have their repressions, but the nature of these repressions depends upon the external physical environment (food and shelter needs) and upon the primary institutions of that culture. Frustrations of different types exist. In one culture there may be frustration of the need for food, of the need for protection and security in childhood, or of sexual satisfaction. The pattern of frustrations will determine many of the worries, problems, and anxieties which exist in the individual. Different cultures seem to have different ways of handling anxiety and different methods of resolving frustration. Freud held that repression and anxiety were the same in all cultures; that they were biologically determined; and that the outward form or particular customs of a culture did little save modify the way in which the symptoms were exhibited. Another viewpoint is that only when the particular cultural frustrations are unearthed can the anxieties that exist in that culture be understood. It would follow from this second theory that there are fundamental differences in the nature of anxiety among different cultures. Since no conclusive evidence is available to show which interpretation is correct, this point remains speculative.

Psychopathology in different cultures

The crucial test of whether cultural influences produce definite variations in psychopathology lies in whether there is a difference in incidence of certain mental disorders in different cultures. Unfortunately, there are few reliable statistics that can be presented on this point and speculation must rest on fragmentary bits of evidence, many of which have been collected by people who were not psychiatrically or psychologically trained. Heated arguments develop from the statement made by some anthropologists that neuroses do not occur in "primitive" cultures and are manifested in such groups only when there is increasing contact with the repressions and disciplines of our western civilization.[13] This notion was accepted by those who held that infantile and childhood sex repression is the cause of all neuroses. If the culture did not impose these early sex repressions, there should be no neuroses. More critical study of these so-called primitive cultures usually indicates that neurotic forms of behavior do occur although the symptoms may be somewhat different from the symptoms of neuroses found in our

culture. That neurotic behavior is more frequently recognized in those primitive cultures which have increased contact with our civilization may or may not be true. It remains to be proved that it is the conflict between the institutions of the two cultures which has been responsible for instances of abnormal behavior.

There are many ethnological observations suggesting that certain forms of mental abnormality may be more frequent in one culture than in another. This is true, especially, of hysteria. Reactions of the hysterical type have been described in essentially every cultural group, but in some cultures they are said to be very frequent, in others very rare. For example, in studies made of many different tribes and cultures living under conditions of privation and physical discomfort in Arctic regions, hysterical reactions have been reported to be very common. Convulsive seizures, either epileptic or hysterical, have been seen in cultural groups from all parts of the world. Periods of intense excitement also have been widely observed, but whether or not these should be identified as manic episodes of a manic-depressive syndrome is not established. On the other hand, there are some conditions which are thought to stem directly from specific cultural factors, and so are limited to certain cultures having these factors. Under this heading come the conditions called *amok* and *lattah*. It is said that running amok, as it occurs in Malay, can be understood only in terms of the Malayan culture. The pattern of destructive behavior is not truly comparable to the form of homicidal or destructive fury as it is seen in other cultures. It is viewed and treated by the natives in a way which is different from the way in which we would view it.

One form of aberrant reaction upon which we can compare different cultures is suicide.[3] On this topic, at least, we do not have to worry about differences in terminology; the person either took his own life or he did not. In order to evaluate the psychological significance of suicide, we must consider the social and cultural conditions surrounding the individual and the attitude of that culture toward suicide. There is definite evidence that cultural patterns influence the incidence of suicide. In some cultures it is common, as, for example, among the Navajos; in others it is rare or absent, as among the Zunis. There are certain primitive cultures which have set ways and conditions of committing suicide. The psychological attitude leading to suicide apparently depends, in part, upon the accepted cultural belief of the nature of the after-life. Suicide may be a legitimate way of revenging oneself upon another person, of clearing one's honor, or of expiating some breaking of cultural taboos. Malinowski [11] described an incident in the Trobriand Islands, showing the cultural determinant of a suicide. A man

had sexual relations with a girl who was, to him, sexually taboo. The community looked down upon this relationship but no steps were taken to punish him until an offended rival, who was supposed to marry this girl, denounced him publicly. Then, he had no choice about his actions. The next day he donned ceremonial robes, went through the traditional form of blaming his rival for this act, and killed himself. The Japanese practice of *hara-kiri,* when in disgrace or when wishing to disgrace an enemy, is an additional example of suicide as an act occurring from, and determined by cultural forms. Necessarily, it has a different psychological significance from suicide in our culture.

In a South African mental hospital and during field trips among native tribes Laubscher [10] made a psychiatric study of native Africans, particularly of the Tembu tribe of the Bantu nation. He found that schizophrenia was the most common form of mental derangement and that the framework of the schizophrenic process is the same in both Europeans and these natives, except that the psychotic mental content differs according to the system of beliefs and the general cultural pattern. In the schizophrenic the hallucinations that occurred were predominantly auditory. Ideas of reference were not attributed to objects at a distance. Such ideas were all concrete instances in which the person doing the evil was present and observed. The majority of females with delusions believed that their food was being poisoned; among males, the delusion of being bewitched was the most common form. He found that mental deficiency, epilepsy, and schizophrenia frequently occurred in the families of the schizophrenic patients. In general, the fact that forms or structures of mental disorders similar to those found in the Western culture were observed in these natives, having basically different experiential and social backgrounds, supports the contention that their basis lies mainly in constitutional and biological factors.

Of the hospitalized native patients, 55 per cent of the males and 67 per cent of the females were diagnosed as schizophrenic, while 7 per cent of the males and 6 per cent of the females were diagnosed as cases of manic-depressive psychosis. According to physicians who had dealt with many natives, neuroses were rare although hysterical attacks were not uncommon.

The natives distinguished two forms of mental disturbance, *ukutwasa* and *ukupambana. Ukutwasa* they believe to be a state which precedes the development of mediumistic psychic powers. This state is supposed to follow a definite pattern and is ordained by ritual and custom. It is a precursor to the powers of the witch doctor. The accounts of *ukutwasa* given by the native witch doctors seemed to be more the recountal of rituals than descriptions of personal experience. The natives have no way to distinguish between these

ritualistic patterns and the psychotic manifestation of hallucination and delusion. All sorts of mental disturbances and abnormal behavior were called *ukutwasa*.

When there is mental confusion, stupor, coma, catatonia—a "loss of senses"—it is called *ukupambana*. The concept of "senses" is taken as an entity, something so concrete that it can be taken away as a leg or finger might be removed. The loss of senses is attributed to the influence of witchcraft. The natives view these forms of behavior as caused by some extraneous factor over which the proper witch doctor and proper medicines can exercise control. A person is not brought to the mental hospital at the first sign of unusual behavior. Treatment under the witch doctors may take place for years. Knowing that the white men will lock up such a person in a hospital, the secret of his condition is carefully kept. The person is guarded day and night and is tied up in a hut or out in the hills. If he lives near European habitations the authorities will apprehend him if he becomes a nuisance to their society. If he lives farther removed from such contacts he is less likely to be hospitalized at any time unless his friends and relatives appeal to the headman, chief, or magistrate for help. Resort to the authorities for assistance results when the native becomes violent and uncontrollable, attacks others, sets fires, and thus becomes a general danger to his people.

The incidence of the various types of mental disease among hospitalized East African natives of Kenya Colony had been reported by Carothers.[2] His figures based on 558 African natives first admitted to a mental hospital over a five year period may be compared to those of Landis and Page [9] for New York State white and Negro rates as shown in Table 9.

Table 9. Average annual number of Negro and white first-admissions to all New York State mental hospitals and first-admissions among Kenya Africans according to diagnosis (African figures not standardized for age or sex).

	RATE PER 100,000 GENERAL POPULATION		
DIAGNOSIS	*Kenya Africans*	*New York State Negro*	*New York State White*
Schizophrenia	32.0	51.1	25.7
Manic-Depressive	4.2	20.0	13.3

The comparison in Table 9 is not beyond reproach since the African figures are not based on rates which were standardized for the number of each sex and age group in that general population. The age of the African natives is usually unknown since no records are kept and the natives themselves make no effort to know or remember their own age. Furthermore it is impossible to make direct comparisons for other diagnostic groups since

the basis of computation used in Africa was different from that used in America. In Kenya general paresis, cerebral arteriosclerosis, senile dementia, and alcoholic psychosis are rare. The depressive phase of manic-depressive psychosis was not seen in the hospital. Paranoia and the paranoid form of involutional psychosis were seen; the symptoms were aggressive suspicion and ideas of persecution. No obsessional neuroses and few anxiety states occurred. The African group of 558 cases included 304 persons who were diagnosed as epileptic, amentia, psychopathia (not psychotic), and dementia of organic or unknown origin.

The comparison rates for schizophrenia and manic-depressive psychosis in African natives and American-born groups is now more understandable. Schizophrenia probably does not differ very much in incidence in America and among African natives. The depressed manic-depressive cases are not hospitalized while some diagnosed as psychopathia may have been manics. Factors such as these probably account for the difference in rate for the manic-depressive psychosis.

According to Carothers' figures the incidence of mental derangement is very much lower for Kenya natives (3.4 per 100,000 per year) than for Negroes in Massachusetts (161 per 100,000), or for the total population of England and Wales (57 per 100,000). He enlisted the assistance of the local chiefs of certain of the native reserve areas to make a census of the insane and mentally deficient in their reserves. This produced a rate of 0.37 per 1000 unhospitalized among the population as compared to 3.9 per 1000 in England and Wales.

If the factors of age distribution of the population (not so many old people), relative absence of certain psychoses mentioned above, greater tolerance of those who are mentally ill but not violent, and the dying at earlier ages due to physical illness, all of which would contribute to a lowering of the rate of mental illness among the Kenya natives, were to be taken into consideration, this large difference in incidence would undoubtedly be diminished.

Carothers, like Laubscher, pointed out the similarity in the psychological symptoms of the mentally ill primitive African native and the civilized whites of Europe and America. All surveys of mental illness in populations from various parts of the world show that if the observer is well acquainted with the group, understands fairly well their language and customs, and knows something of the ways in which mental illness appears in his own culture, that every variety of psychopathology known to American or Western European civilization occurs in much the same form everywhere.

The major psychoses, epilepsy, and mental deficiency, occur in all

cultures with essentially the same basic symptoms. The content of the symptoms vary. The schizophrenic patient in America complains of the influence of radio waves while the South African native complains of the influence of the witch doctor. The attitude toward mentally afflicted persons is one that can be understood only within the frame of reference of a particular culture and its beliefs, prejudices, and customs. The social role of the queer or eccentric individual or the mild psychotic may be one that is respected, scorned, or condoned. The acutely disturbed psychotic individual requires segregation and restraint in any society. The frequency of occurrence of the various forms of neurosis in cultures other than our own is not known although the fact that neurosis does occur in all cultures has been adequately substantiated.

Mental disease in our culture

In the terms of social anthropology our own culture is a highly competitive patriarchal society with legal monogamy. The mother is responsible for the care and raising of the children, while the father is the economic provider and occasionally the principal disciplinarian of the child. Actual hunger (food deprivation for long periods) is rare. Save for accident, war, and disease, life itself is seldom endangered. Sexual play in childhood is taboo and the child is made to feel that such practice is very bad and shameful. Formal education of the child is carried on into the teens. Only by the late teens or early twenties does the individual become self-supporting and socially independent of his family. Throughout childhood and adolescence he is indoctrinated with standards of what is right and wrong to do. The fact that people he knows and respects may do things that he has been told are wrong may puzzle and worry him. He has been given a code of behavior involving respect for the rights of others, but he is part of a culture in which the competitive spirit is strong and where successful rivalry with others meets marked approval. The approved pattern of behavior depends on both the sex and the age of the individual. The role of the male is a more dominant and aggressive one than that of the female. Although "careers" for women are socially acceptable, the usual pattern is that of homemaker and housewife. The above statements are merely illustrative of certain obvious characteristics of our culture. They are not intended to portray the pattern or basic structure of our society but to suggest a few of the sociological factors which enter into the usual course of development.

A balance of assets and liabilities of our culture with reference to its success or failure in meeting human needs may be presented as follows:

Assets	*Liabilities*
1. Belief that individual's welfare is supreme test of a society.	1. Lack of economic security.
2. Belief in efficacy of general education.	2. Over-emphasis on personal achievement of prestige and power.
3. Recognition and cultivation of individual differences.	3. Loss of individual identification as a responsible member of a group.
4. Concept of freedom to speak, think, and do as we please.	4. Group conflicts (national, economic, religious, racial).
5. Belief in a progressive, changing society.	5. Cultivation of group hostility and prejudice by small groups for personal gain.
6. Belief that health is a matter of public concern.	

Beyond such a balance sheet of social values there are important factors in any culture which affect the mental health of all individuals. These factors include language, customs, and beliefs generally accepted by a particular group. There are other factors which make for differences within the group. The customs and standards of conduct are different for the male and the female, for the child, the youth, the adult and the aged, for the different occupational groups, and for the different religious groups. The pattern of the culture specifies that people of a certain type are supposed to behave in a certain way. According to this approach of social science to behavior, the study of the individual concerns roles assigned to him by the *mores* or rules of social living. The role that is expected of him is not only an external system of restraints upon him, but a system of interpersonal relationships.

In addition to these, there are changing social conditions within the whole culture which have their reflection in personality reactions because they change the pattern of life of all individuals in that culture. Under this heading come war, famine, economic depression, or great disease plagues which sweep over a large portion of a population.

Age

One comparison that can be easily made within the subgroups in our culture is that based on age differences in the population. Landis and Page [9] have pointed out that the most important single index that we possess concerning mental disease is the age of the patient or the age distribution of a group of patients. If such data are available, one can make fairly accurate estimates of the frequency of the different diagnostic types of mental disease, the relative proportion of males to females, and the number of cases that can

be expected to improve. As Figure 28 shows, most of the mental diseases have a characteristic age distribution. In some diseases this age span is relatively broad, but each has what might be called the age of maximum

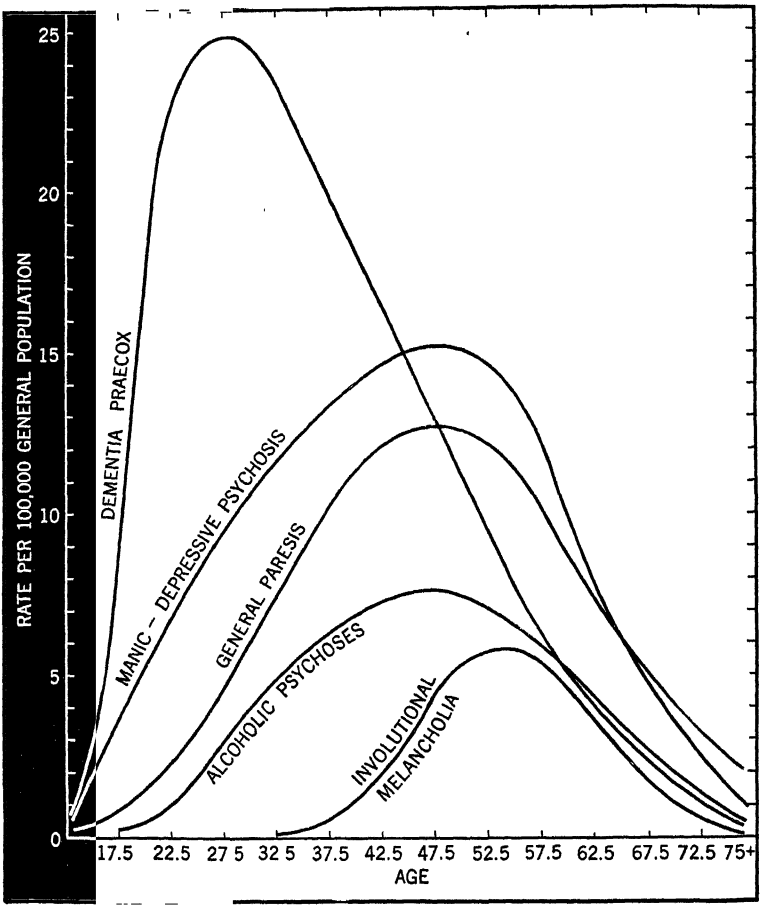


Fig. **28.** Number of first-admissions to state mental hospitals in the United States during 1933, by age and psychosis; expressed as rates per 100,000 of the corresponding general population of 1933.[9]

susceptibility. For example, the age group between twenty-five and thirty is most susceptible to dementia praecox and very few individuals develop it before age eighteen or after age fifty. Manic-depressive psychosis, general paresis, and alcoholic psychoses have a broader span of age-susceptibility but are most prevalent, as first-admissions to mental hospitals, between the ages of thirty-five and forty-five. The cases of senile psychosis and cerebral arteriosclerosis are, of course, limited to the older age groupings.

Although youth and adolescence are often regarded as periods of great emotional stress and strain, the incidence of mental disease at these ages is much lower than at the older ages (Figure 29). The probability of develop-

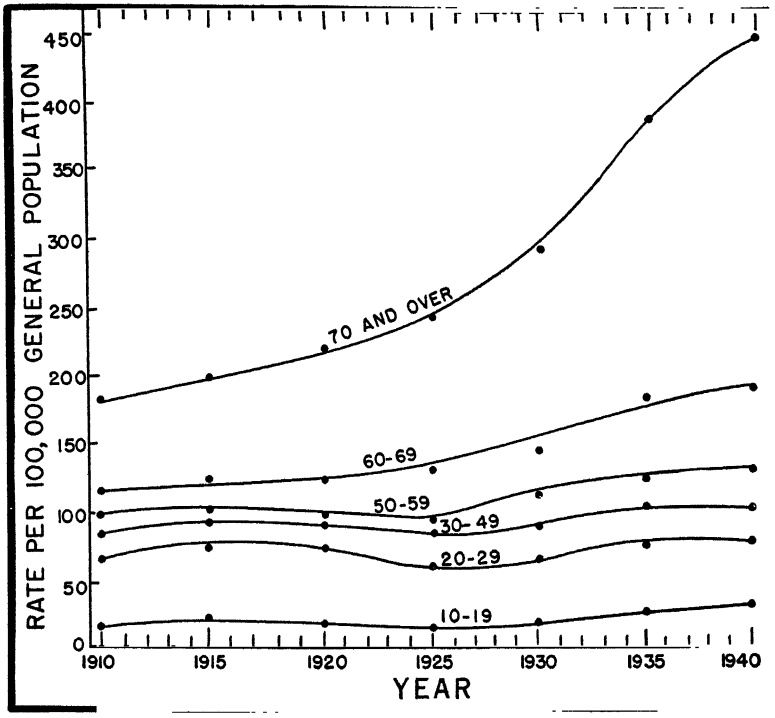


Fig. 29. Trend by age of first-admission patients to the state hospitals of New York, 1910–1940.[13]

ing a mental disease which will lead to hospitalization increases with age. After age sixty there is a great acceleration of the rate.

The association between age and incidence of mental disease may be interpreted in several ways. There are differences in the stresses and strains placed upon the individual by society at particular periods of his life correlated with social roles assigned to him by the culture. At certain ages he is expected to adjust to a new pattern of living because he is forced to accept or renounce important duties and responsibilities. When he first reaches adult status or when he is finally retired or sees retirement near at hand, there are real problems of adjustment. In an individual with a limited ability to adjust a breakdown may occur.

Complicating the role of social adjustment at various age levels is the fact of biological maturation. It seems evident that most forms of mental dis-

order do not (or cannot) appear until a certain point in maturation is reached. In this sense an individual has to be old enough to develop a particular form of abnormality before the social stress can be effective (when social stress does play a role).

Even though it is impossible at present to assign evaluations to the relative importance of maturation and social and environmental stress in each form of mental illness or for particular individuals, there can be no doubt that psychopathology bears a constant relationship to age.

Education and economic status

With the information provided by our mental hospital systems it has been difficult to evaluate any differences which may exist between the educational levels of mental patients and the general population. It is definite, however, that the percentage of illiteracy is higher for first-admission mental patients than it is for the general population. Other differences appear when the various diagnostic groups of mental patients are compared in regard to educational status. In general, patients diagnosed as having paranoia, psychoneurosis, involutional melancholia, or psychopathic personality have had more years in school than have patients who develop the organic psychoses (alcoholic psychoses, cerebral arteriosclerosis, and senile dementia).[9]

Various inquiries have been made of the relation between economic status and mental disease.[6] The first-admissions to certain Illinois State mental hospitals from the city of Chicago for 1922–34 were studied in relation to the sociological conditions of housing; that is, the cost of rent and type of building. Where the rent was under fifty dollars a month, there was a probability of 1 out of 18 white men, and 1 out of 20 white women being admitted to mental hospitals some time during their life; as compared to 1 out of 21, and 1 out of 22, respectively, in the higher rent districts. These differences do not permit us to conclude, however, that the general living conditions directly influence the production of mental disease. They merely indicate that families who can pay higher rents can also afford to take care of their older relatives at home, so that they have a lower hospitalization rate, particularly for senile psychosis and cerebral arteriosclerosis.

That there is a positive relationship between the rate of hospitalization for mental disease and the economic level of various urban areas was shown by the studies made in Chicago and Providence by Faris and Dunham.[5] Their surveys demonstrated that the incidence of mental disease is highest among single male individuals living alone in the low rent areas of a city. This finding does not mean, of course, that low economic status or isolation

from family contacts is the *cause* of their mental disorder. It is more probable that their poor living conditions are the effect, rather than the cause of the prolonged maladjustment. A gradually developing psychosis tends more and more to incapacitate the person vocationally and financially, so that his economic level decreases. One investigation of families with schizophrenia in several successive generations revealed a progressive and uninterrupted decline in social status.[7]

Rural-urban rates

The statistical reports for America and other countries show that the incidence of hospitalized mental disease is much higher for urban than for rural communities. This holds true for both sexes and for all diagnoses. In certain diagnostic categories the differences between urban and rural rates are wider than in others. For example, alcoholic psychoses, general paresis, and psychopathic personality are at least three times more prevalent in the urban than in the rural population.

These marked differences might suggest that the "mad pace of the city" produces mental breakdown. A moment's consideration discloses the inadequacy of such a conclusion. In the first place, the housing conditions in the city, close neighbors, and similar factors prevent a person who is mentally disturbed from being kept at home even if there is room for him. Secondly, city dwellers use and trust hospitals for all sorts of illness far more than do rural dwellers. Clinics and hospital facilities of various types are popular and easily available in the city, whereas many rural inhabitants avoid going to a hospital as long as possible. Thirdly, the larger size of the family unit in rural areas favors home care, since there is more apt to be someone to take care of those who are mentally disordered, while in the city this is not so true. A further factor is that living in the country is a safer environment for the abnormal person who becomes confused and wanders about. Such behavior in the city may lead to accidents, and it certainly leads to the attention of the police who will take any person potentially dangerous to himself or others to a hospital. Since the rural environment is simpler and makes fewer demands, many mentally disturbed persons are able to adjust to life on a farm or in a village without becoming sufficiently conspicuous to require commitment to a mental hospital.

From the figures that are available on actual number of urban and rural persons who are mentally abnormal, irrespective of whether hospitalized or not, it has been found that the rates for the rural areas closely approximate the urban areas. The Swedish census (1930) showed a rate of 45.4

per 10,000 of the general population in rural areas and 45.1 in urban areas.[9]

National, racial, and religious groups

Upon first inspection the differences in the rates of hospitalized mental disease between foreign-born and native-born Americans are as startling as the differences between rural and urban groups. The uncorrected figures indicate that mental disease is twice as prevalent among foreign-born whites as among native whites. When these rates are corrected so that they are directly comparable for the age and urban or rural environment, then the foreign-born rate is but 8 per cent higher than the native-born. If the rates were to be further corrected to allow for the fact that the foreign-born group has more unmarried men of low economic status, in which group we know that the incidence of hospitalized mental disease is higher, then the 8 per cent difference would probably disappear. Hence, it is apparent that no sweeping statement as to the prevalence of mental disease in the foreign-born can be made.

Less complex is the finding that migratory groups have a higher incidence of mental disease than those living at home. Inability to adjust is a prime mark of abnormality and should be expected to express itself in higher figures for mental disorders among migrants, since it is mainly such abnormal persons who move from one place to another or frequently shift localities of home or employment.

The greater incidence of mental disease among migratory individuals has been used by some writers to explain why the rate of mental hospitalization for American Negroes in the North is higher than for whites. But the fact that the first-admission rate in thirty-seven of the forty-eight states (1933) was higher for Negroes than for the native white population shows that migration is not the sole reason. The Negro rates are especially high for general paresis and alcoholic psychoses, and are also relatively high for cerebral arteriosclerosis, dementia praecox, and senile dementia. This excess in the hospitalization rates for Negroes may largely be ascribed to the lack of home care which, in turn, rests in part on a lack of economic opportunity and security. Another consequence of the lower economic level of Negroes is the inferior quality of the treatment for syphilis and other organic diseases.

Various investigators have presented reports which considered the relationship between religious belief or group, and mental disorder. Some have tried to show that the rates are higher (or lower) for Catholic, Protestant, or Jew and that the difference is a reflection of the religious faith. There is

no satisfactory evidence based on large populations whose personal faith was verified which can be said to show that religious belief enters into the mental disorder in any fashion other than that of coloring the symptoms. The schizophrenic patient who is Catholic might hear the voice of his name saint while the Jew might hear the voice of Moses.

War and economic depression

Analysis of admission rates to mental hospitals indicates that war, economic depression, and unemployment have not led to an increase in the rates of hospitalized mental disease. This seems surprising if we consider the amount of mental stress, insecurity, and emotional upset which are associated with these conditions. Landis and Page [9] have shown that the first-admissions to the state mental hospitals in New York, Massachusetts, and Illinois gave no evidence that the depression during the 1930's had any effect on hospitalization for mental disease. (See Figure 29.) It seems that economic depression and unemployment may be reflected in a temporary impairment of the general psychological adjustment of certain groups and in the intensification of everyday worries of many individuals, but they do not make them candidates for a mental hospital.

Unemployment has been found to have certain psychological correlates. Lazarsfeld and others [4, 14] made a clinical study of unemployed people and spoke of three basic attitudes fostered by unemployment: the unbroken, the distressed, and the broken. In the first group were those whose personality adjustment was not fundamentally disturbed. They were not resigned to their lowered standard of living and continued to struggle against it. The second group, the distressed, included those who were fundamentally disturbed but not completely discouraged. They fluctuated markedly between acts of aggression or rage, and despair, resignation, and attempts to escape. The broken individuals had given up hope and interest in life to such an extent that they were completely apathetic and without ambition. The psychological problems were found, of course, to be related to the duration of unemployment. Prolonged unemployment was usually followed by emotional instability, anxiety, and the development of a state in which the person lost confidence in himself and felt inferior, helpless, and afraid of the future. The problem was not so much one of low financial level with marked deprivation of the basis essentials of life, as it was a reaction to loss of something that the person had had before and a forced change from the status he had formerly held.

A survey of German medical experience made by Bonhoeffer [1] demon-

strated that neither World War I nor II gave rise to an increase in the incidence of psychosis although the stress of warfare did bring about more neurotic manifestations in soldiers and civilians. Great fatigue, sleep deprivation, and the excitement of war led in both wars to transitory neurotic states. No new psychopathological forms were found among the soldiers of World War II when compared to the manifestations of World War I. The second World War brought new stresses to the civilian population. They were subjected to the loss of sleep and constant anxiety of the aerial bombing; they were subjected to torture to secure "confessions"; the inmates of the concentration camps were tortured, forced to tremendous labor, and inadequately fed. During the first war psychopaths feigned misery and begged on streets successfully but in the second war they received scant sympathy. After both wars there was an increase in the number of those resorting to drugs and alcohol. The remarkable thing learned from both wars was the extraordinary resistance and adaptability of the healthy person to the incredible demands of modern warfare.

Summary

Social, cultural, and environmental factors enter into the formation of the individual personality. They play a role in the symptom picture presented by any abnormal person. Their importance in the determination varies from all to none. It is possible to give a rough evaluation of the comparative importance of certain of these social circumstances.

The observations of the cultural anthropologists are of importance to abnormal psychology in that they shed light on the contribution of social patterning to personality development and the cultural determination of symptoms and complaints of the abnormal person. The major psychoses, epilepsy and mental deficiency, are expressed with a striking similarity in all social or cultural groups so far as the basic complaints, course, and outcome of the diseases are concerned. There is a wide variation in the expression of particular symptoms. For example, the native South African Negro feels "bewitched" and the urban American feels "anxious"; both are of troubled mind, but each thinks of his trouble in a different fashion and, within limits, shows his symptoms in a different way.

Age, both in terms of biological maturation and social customs, enters as a major factor in mental illness. Education and economic circumstances are determining elements in the hospitalization for mental illness. It has never been established that educational background is in any way related to the causes of mental disease, although certain mental disorders are much

more common in the lower education levels. The rate for mental hospitalization is higher among those from urban communities than from rural, among those from the slums than among those from better housing facilities, and for foreign born than for native born. These differences are mainly a function of custom, tradition, and economic pressure.

There are differences in rates of hospitalization among national, racial, and religious groups. Such differences are usually attributed to the customs and beliefs of the group in question. If the evidence purporting to show a difference is critically evaluated it is frequently found invalid. Surprisingly, the great stress of war or of economic depression is not reflected in the incidence of psychosis, though they both result in an increase in various neurotic complaints.

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SECTION THREE
EXPLANATIONS

Chapter 21 *Development*

THE DEVELOPMENTAL APPROACH TO THE STUDY OF HUMAN BEHAVIOR IS based on the concept that both heredity and environment contribute to every aspect of the constitution, behavior, and mental life of the individual. Reference to the effect of heredity or environment isolated one from the other is regarded as a misleading abstraction. Although this abstraction is inaccurate, it persists in everyday thinking. Every stage of development is a product of the interaction of structural, physiological, and environmental factors, each affecting, and being affected by, the others. The process of growth is a continuous one and any one stage evolves from the preceding stages. To understand the personality reactions of the individual, we must go back to reconstruct the course of his development.

Gesell,[7] one of the leading contributors to the study of child development, has pointed out that the process of development is just as real and valid as digestion, respiration, or any other vital function. According to him, development is the summated and integrated resultant of all the life functions of an organism moving through a self-limited cycle of time. Environmental factors support, inflect, and modify, but do not generate the progress of development. The basic patterns and sequence of patterns are determined by the process of maturation. Although the role of maturation is most conspicuous in the foetus and the infant, it persists throughout the life cycle until the growth potential completely subsides.

Adolf Meyer contributed a viewpoint and a method for the developmental study of the abnormal personality. He stressed the importance of viewing behavior and mental disorders in their proper perspective, with all the events that led up to them. In order to understand the significance of any disorder, one must discover the antecedent events that make the later reactions understandable and, in fact, necessary results. Without an under-

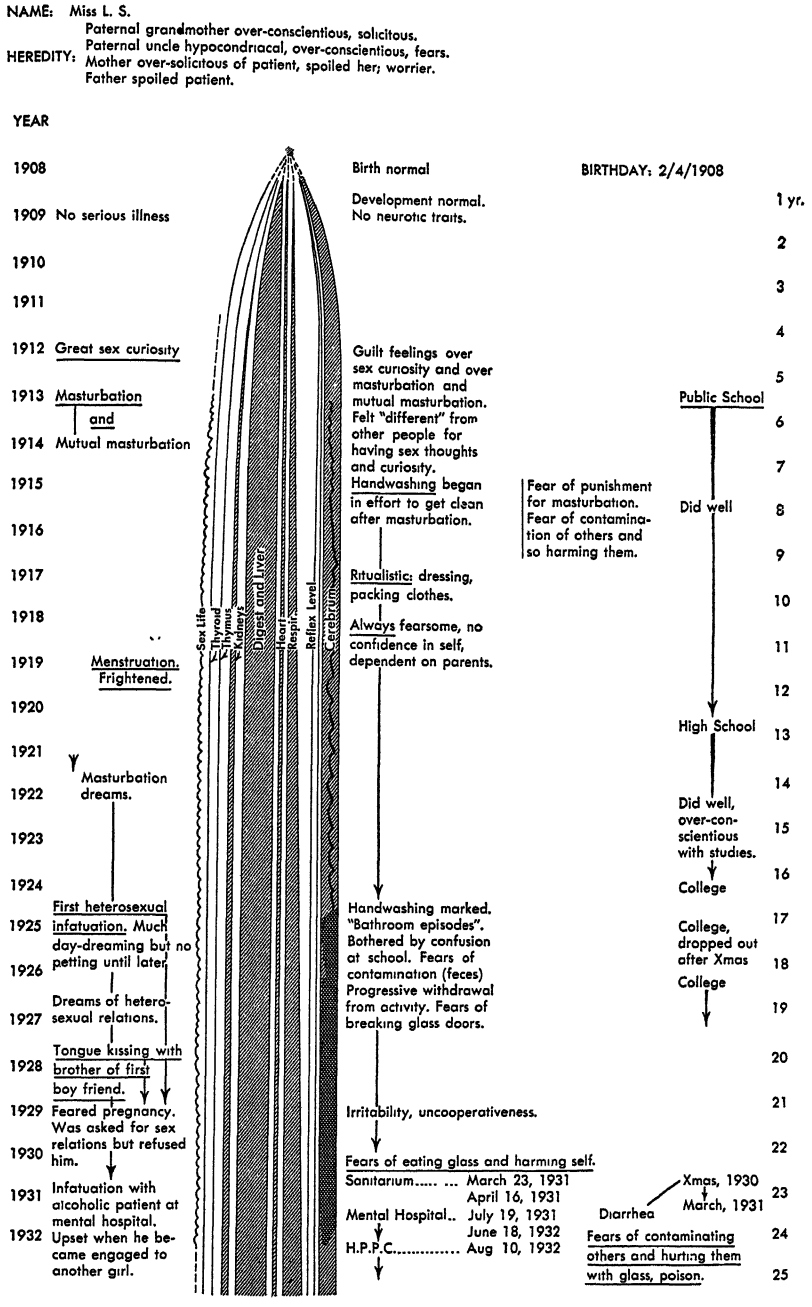


Fig. 30. An example of the type of diagrammatic analysis of personality development used by A. Meyer and his students.[15]

standing of the life history in which the symptoms occur, they cannot be truly evaluated. The psychobiological approach to the life history includes investigation of early habit formation, various psychological functions, possible constitutional deficiencies, and the anatomical and physiological components that may enter into the personality reaction types.

Allport [1] systematized and brought together a great deal of the available information on personality development. He believed that the essence of personality is *individuality*, so that recognition and study of the person as a unique, concrete organization are the main problems of the psychology of personality. A single life history,[2] when fully studied, shows an orderly and necessary process of growth, each stage being the necessary result of what has gone before. Allport includes differentiation, integration, maturation, and learning as different aspects of growth. He adds another which he feels is necessary to provide an understanding of the dynamics of the mature personality. This principle he calls the "functional autonomy of motives," and he uses it to explain the ultimate uniqueness of personality.

> Dynamic psychology . . . regards adult motives as infinitely varied, and as self-sustaining, *contemporary* systems, growing out of antecedent systems, but functionally independent of them. Just as the child gradually repudiates his dependence on his parents, develops a will of his own, becomes self-active and self-determining, and outlives his parents, so it is with motives. Each motive has a definite point of origin which may lie in the hypothetical instincts, or, more likely, in the organic tensions and diffuse irritability [of the infant]. . . . Theoretically all adult purposes can be traced back to these seed-forms in infancy. But as the individual matures the bond is broken. The tie is historical, not functional.*

This view is a marked departure from the earlier concept of instincts or motives as predetermined, purposive patterns of reaction continuing from infancy and going along with the individual like his guardian angel, influencing contemporary reactions but not influenced by them. Instead, one motive is viewed as growing out of a previous motive, and finally reaching the point where it exists independently of this earlier motive. In other words, it comes to be functionally autonomous.

Outline of development

Developmental patterns

At the moment of conception, the genetic endowment of the individual is established. This consists of *potentialities* for certain types of develop-

* G. W. Allport, *Personality: A Psychological Interpretation.* New York, Holt, 1937, 194.

ment. Whether or not these tendencies reach expression will depend upon conditions outside of, and within, the organism. Strictly speaking, one does not inherit blue eyes, but one inherits the capacity to develop blue eyes. This capacity will be realized whenever developmental conditions are adequate. Thus, the range of potential development is genetically determined, but environmental conditions determine which specific forms will develop out of this range.

The environment of the foetus is much more constant than the complex human environment after birth. Nevertheless, there are various conditions which may influence foetal development. Maternal illness, nutritional factors, X-rays, and certain other agents may affect the developing embyro (Chapter 22).

The earliest behavior of the new-born child has been observed and interpreted in various ways by different investigators. Watson [22] believed that behavior developed from simple, discrete reflexes into coordinated wholes. This interpretation of development is not consistent with observations of later investigators who have found that the first responses are mass reactions of the whole organism. These generalized reactions develop in the direction of greater specificity of response, with localization of the response in a limited segment of the body. The trend from generalization to specificity of response (individuation) is considered the pattern of early development although there are certain types of reaction which seem best understood as the result of integration or combination of responses.

The first responses of the infant after birth consist of: (*a*) diffuse, random movements involving the body, head, and extremities; and (*b*) smaller patterns of reaction, such as breathing, swallowing, sucking, grasping, and the like. These action patterns are more marked following external stimulation by sound or touch or when the infant is hungry.[10] They may be modified or integrated into new patterns of reaction; the mass actions become specialized into adaptive moments, the smaller patterns of reaction become integrated into larger patterns that appear only under specific conditions of stimulation. In general, the early periods of growth include the building up of adaptive responses through conditioning and integration. The responses that can be acquired depend not only upon environmental stimulation, but also upon the state of maturation of muscles and of the nervous system. For example, no matter how much "training" is given, control of the sphincter muscles necessary for voluntary bowel and bladder control is possible only after the nervous system has sufficiently matured.

The human infant with its diffuse, poorly integrated patterns of response

is relatively helpless when we compare it to certain animals, such as the calf or colt, which are able to run around quite adeptly very shortly after birth. Much of their adaptive equipment seems to be prefabricated. The outstanding characteristic of the human infant is its plasticity, its wide range of potentialities. The capacity for modification of behavior and for the formation of complex levels of integration of response are part of the constitutional endowment. Both maturation and learning enter into the specific course of development.

The processes of growth during the first five years of life follow no single, rigid form but do evidence characteristic, sequential patterns from which definite developmental principles can be inferred. Gesell and his coworkers have made extensive studies of the general sequence of growth of early development. Gesell [8] formulated five principles of development which are not to be considered as absolute or independent but which assist in the understanding of the phenomena of growth. (*a*) The principle of *developmental direction* is the expression of the biological differentiation in which the head end grows and develops more rapidly than the more posterior portions. The growth charts of infants show the continuity of growth along this principle. This head-end dominance is evidenced in the prone behavior of the infant through the sequence of organization which leads finally to erect posture. (*b*) A second principle, *reciprocal interweaving,* concerns the relationships between paired and opposed motor organs. During the course of development the balance and opposition of arms and legs, each possessing flexor and extensor muscles, requires a complicated integration and coordination before such behaviors as turning over or creeping can take place. (*c*) The principle of *functional asymmetry* governs parallel and diagonal coordination. (*d*) *Individual maturation* refers to the specific and orderly development of each individual. Even identical twins show differing maturation of specific elements of behavior. (*e*) *Self-regulatory fluctuation* refers to self-limited swings in the development of the organism. Progressive fluctuations culminating in more stable responses are characteristic of all behavior development. They have a positive function in the economy of growth and learning. The maturing organism does not advance along a straight line but oscillates along a "spiral" course between two self-limited poles. The spiral rather than linear direction of growth is illustrated by the fact that the organism at times seems to fall back from a level of maturity which it had already gained. The level of function of the organism returns not to precisely the same point but to one at a more appropriate level.

The growth and development of each infant assume a distinctive pattern. Motion picture records were made in Gesell's clinic of the daily major

activities of five infants. Additional records of the same children were made at age five. Fifteen behavior traits (such as social responsiveness, reaction to success, energy output) were rated at age one and age five in rank order for the five subjects by an expert who had never seen the children. The amount of agreement between ranks at the two age periods indicated that there were persisting traits in the make-up of each individual.

Even in the first year of life, temperamental variations can be observed. Individual differences among babies with respect to being attentive or inattentive to people, and differences in the amount of laughing and crying have been studied.[21] Although there are no extensive follow-up studies that show whether these early infantile and childhood patterns continue into temperamental characteristics in adult life, it has been found that there is individual consistency over a period of years.

Shirley [19] reported certain consistencies in regard to adaptability, timidity, and aggressiveness based on observations for a two-year period beginning at the time of birth. Shirley wrote personality sketches on nineteen of the twenty-five children in her original group based on her two-year acquaintance with them and their families. Neilon [16] carried out a follow-up study fifteen years later and was able to obtain partial data on all nineteen, with full data on sixteen subjects. Adolescent personality sketches were prepared and matchings with the childhood sketches were made by impartial judges. The results of individual judges and the mean score of all judges were significantly better than could be expected by chance. From these findings one may infer that identifiable personality similarities persist during the first fifteen years of life. It was also noted that some individuals were more readily identified after this period of time, presumably due to greater uniqueness of personality. Studies of this type are both interesting and valuable but, unfortunately, quite scarce.

Information relevant to the point can be obtained from Terman's studies of gifted children.[20] He collected information bearing on the extent to which superior IQ in childhood is predictive of superior achievement in adult life. His study has extended over a twenty-five year period. A number of significant differences related to IQ were found. These include such childhood factors as emotional stability and social adjustment. It is of interest that mental health as indicated by symptoms of nervousness and instability differed but little between those of high IQ and those of extremely high IQ, either in childhood or after twenty-five years. However, those of very high IQ made a significantly better emotional life adjustment.

In a clinic known as "The Children's Health Class," Wile [23] and his

collaborators made a study of the continuity of the neurotic process in one hundred neurotic children. (All mental defectives, epileptic, psychotic, and delinquent cases were excluded.) Fifty of these were problems at the clinic before age ten and fifty during adolescence (age 11 to 16). When the first group of fifty were reexamined during adolescence it was found that sixteen had continued their earlier symptoms and complaints, eleven had some one or more symptoms continuing, and twenty-three were free from neurotic behavior. On the fifty cases examined as adolescents, the early history of twenty-four gave considerable evidence of continuous neurotic behavior, fifteen had at least one symptom similar to the behavior at first-admission to the clinic, and ten gave no past history of similar behavior. Thus, for the total of one hundred cases, sixty-seven showed at least some continuity of neurotic behavior and only thirty-three showed no such consistency. These figures were interpreted by Wile as evidence of some continuity of neurotic behavior, some shifting away from early neurotic behavior, and some appearance of neurotic symptoms at adolescence without earlier manifestations. Of this latter group, Wile believed that the potentialities of neurotic behavior may have been present but that conditions did not favor their expression. Similarly, in those adolescents who had lost their previous neurotic traits, there was no assurance that the symptoms would not return. These interpretations were made on the general assumption that a truly neurotic predisposition exists and that it manifests itself under varying conditions at different age levels.

Essentially the same results were obtained in a follow-up study of behavior-problem children who had been treated at the Judge Baker Guidance Center. Bronner [4] found that 62 per cent of those diagnosed as having mental or personality abnormalities had unfavorable careers, as compared to 18 per cent of the total group of behavior-problem children. Among those described as having abnormal personalities of the unstable-egocentric type, 90 per cent had unfavorable careers during the 5 to 8 year period after original treatment.

Effect of home and family

The home situation and the parent-child relationship involve many factors which influence psychological development. The feeling of security and of being loved and wanted is one which the child needs. Levy [13] has shown how behavior disorders in childhood frequently may be traced back to what he has called, "primary affect hunger." Absence of love and affection does not produce one single type of deviant behavior. Rather, a child

may feel insecure and manifest this insecurity in extreme timidity, in fear of being out of sight of the mother, or in being disobedient, defiant, or delinquent, using every possible means of getting attention.

Deficiencies in the family organization or in the quality of the home will also produce feelings of insecurity in the child. Among the unfavorable factors are broken homes, which result when one parent is dead or the parents are living apart. Privation because of an extremely low economic level of the home or exposure to frightening or unusual behavior on the part of mentally abnormal, alcoholic, or morally delinquent parents may exert unfavorable influences on the course of development of the child. Feelings of insecurity have been related to an interference with a healthy course of development either by maternal over-protection, emotional rejection by the parents, or by marked inconsistencies in handling and discipline. Parental behavior of these sorts is frequently tied up with a basic hostility toward the child or with a general emotional maladjustment on the part of the parent.

During the early years of life, the child's relationship to the parents is one of dependence and strong emotional attachment. The parents set the standards of what is good, bad, shameful, or desirable, and thus represent the forces of authority and discipline. The child seeks to win love, approval, and attention from the parents. When he starts to go to school the number of social influences acting upon him suddenly increases. The teacher takes over certain roles that the parents previously held. The rapid expansion of new activities and experiences, as well as competitive contacts with children his own age, requires new adjustments and readjustments on his part. He is no longer the center of interest and attention, as he was at home. He has to learn to accept a new role in a more complex social organization.

Sex factors and development

The sex component in psychological development starts long before physiological sex maturity. The role of infantile sexuality in the first year of life was emphasized by Freud. Whether it is actually that early or not is debatable, but it is clear that the roots (or seed-forms) of sexuality are found in the early childhood years. This does not mean that the infantile or childish sexuality can be identified with adult sexuality. The child experiences satisfaction in the manipulation and stimulation of his own body in many different ways; one of these ways may be stimulation of the genital regions.

Masturbation, defined as deliberate self-stimulation to bring about

erotic arousal, is a quite normal phenomenon. It was reported by 92 per cent of the males and about 60 per cent of the females interviewed by Kinsey and his collaborators.[11] The practice was most common in the adolescent years; only a relatively small number of the preadolescents practiced masturbation. From the early teens to old age the incidence of masturbation dropped steadily. Kinsey found that masturbatory activities were by no means rare in adult males, particularly single males, occurring usually when there was insufficient outlet through heterosexual relations. This finding was also true in the female group, although the incidences were lower. Thus, it would appear that masturbation is a normal phase of sexual development which usually tapers off during late adolescence and adult life when heterosexual outlets are available.

The emotional attachments of the child broaden in scope as he (or she) grows older and the circle of friends increases. Preceding and during the time of adolescence, he is most interested in, and concerned with, members of his own sex. For several years after the time of physiological adolescence, he may remain shy in social contacts with the opposite sex. The fact that childhood and adolescent heterosexual play is taboo in our culture, while close friendship with others of one's own sex is approved, probably contributes to the preponderance of homoerotic attachments in the normal course of development at this time of life. The gradual weakening of the taboo in late adolescence together with physiological maturation permits freer expression of attraction to members of the opposite sex. Emotional attachments to members of the same sex become less and less strong. The process of heterosexual orientation is a step by step development, in which several factors play important roles. First, there is a gradual decrease in emotional dependence on the parents which is associated with a growing self-independence. Where intense emotional attachment to the parents exists, heterosexual orientation may be long delayed in appearing, or even fail to appear. Self-independence is reached only after the individual has outgrown his childhood need for security and protection. A second factor is physiological maturation which is an important component in the psychobiological development of heterosexuality. In cases of hormone deficiency the physical signs of adolescence may fail to appear or may be grossly retarded, and the normal attraction to the opposite sex may never develop. The third factor depends on the relaxing of the taboo against close friendships between boys and girls, so that the boy or girl learns to feel more at ease in the presence of the other. The cultural approval of friendships between the sexes and of courtship facilitates heterosexual emotional attachments.

The period of adolescence is commonly called one of great stress and strain. Certainly, it is a time at which new demands, new ideals, new goals, new experiences, and new emotional attachments occur. The new situations and relationships require new personal adjustments. In light of all these new phenomena, it is not surprising that we find certain personality deviations appearing at the time of adolescence. The way in which the individual meets these changing conditions will be influenced both by the course of development up to that point, and by the particular constellation of factors that is effective at that time. Actually, the course of development merely becomes more complex in this expanding universe of adolescence, and only in exceptional instances is it a period of really great upheaval and trauma.

Adult life adjustment

The curves for both mental and physical growth level off during the teens, but this does not mean that the adult status is a static one. No more inches may be added to the stature nor years to the mental age, but the processes of psychological growth and adjustment continue. The direction of growth and the problems for adjustment change.

In vocational choice, abilities, interests, and opportunities all play a role. If a person likes his work or his profession, he derives satisfaction and a feeling of security and accomplishment. In some instances of vocational maladjustment, the source of the difficulty may be in environmental obstacles which prevent any opportunity for accomplishment; or circumstances may have forced a person into an ill-advised choice of occupation. But in most cases, problems of maladjustment stem from personality difficulties inherent in the individual himself, and many of the inherent difficulties can be traced back to the course of his development. He may be resentful of criticism, bear a chronic grouch toward those in authority over him, or feel that he is being abused or persecuted without justification. Very often these reactions cannot be understood in terms of the particular vocational situation alone, but depend on the individual's whole personality structure.

Training for a vocation is directly comparable to many other kinds of training which are necessary for different types of adult adjustment. For example, adjustment to marriage depends on the growth and development of many factors which originate in earlier experiences and attitudes: emotional ties to the parents, relationships with members of the opposite sex during and after adolescence, and the general ability to adjust oneself to

the needs and demands of a new situation. The difficulties that face a person who expects sustained romance, excitement, and glamour in marriage, and who cannot accept settling down to the level of everyday living are common knowledge. Marital maladjustment frequently occurs in individuals who have developed an exaggerated evaluation of love and marriage, or who are unable to establish a deep and stable attachment to one person.

The desire to have children and to make a home for them as well as for oneself is part of adult maturity. The kind of marriage partner and parent that one becomes seems, very frequently, to be related to the kind of parents and childhood home life that one had. It has been said that there is a pendulum tendency in successive generations of parents as regards discipline. Those who had very strict parents tend to swing to the opposite extreme in handling their children; similarly, those who had very little or no discipline from their own parents, will, in turn, be very strict disciplinarians with their own children. Certainly, there are many instances in which parents try to avoid or to correct some unpleasantness in their child's life that they had experienced in their own.

Whether or not a person will make a good parent is not a chance occurrence, but is related to the degree of his or her adequacy in other life relationships. Many (but not all) behavior-problem children come from homes in which one or both of the parents are unhappy and maladjusted. In some of these cases the mother, dissatisfied with her husband, turns her entire affection on the child, weighing him down with her love and attention, and centering all her interests, ambitions, and desires on him. Under these conditions, she interferes with the child's normal development of independence and, thus, does him more harm than good.

By the time a person is an adult, he has developed a consistent habit system, a general philosophy, a style of life. The particular style depends upon the basic constitutional make-up and the environmental factors that have characterized his development. The interaction between these factors is complex; the nature of the physical constitution in adult life depends not solely on inherited tendencies and immediate environmental circumstances, but also on those conditions surrounding development, such as nutrition, habit formation, exercise, injury, or disease. To explain the way Mr. Grouch is acting, we may refer to the fact that he has a stomach ache, that his liver is not functioning properly, that he did not sleep well last night, or that his mother rejected him as a child so that he still feels insecure and has to demonstrate his own importance. No single item will tell the story. Usually we have to be well informed about Grouch's general reaction tendencies, and the entire course of development of these tendencies, before we can

understand him psychologically and evaluate the basis for his immediate reactions.

Abilities, motives, and physiological conditions vary with age. The motives influencing conduct show a process of growth and change, just as the body does. Motives appearing later in life may derive from earlier ones, but they gradually achieve independence in their own right.

Factors bearing on individual deviation

Maturation

So far a few of the factors that enter into the development of the adult personality have been described. Physical maturation, emotional ties to the family, feelings of security, and the achievement of personal independence have been considered. Deviation in any one of these factors disturbs the normal course and rate of development, as well as the final form and level of development that will be reached. Some individuals never attain a mature adult status and much of their maladjustment can be understood when viewed as childish, immature reactions appearing where adult reactions are necessary.[12] In the field of psychosexual development, the person may remain so immature that he is self-centered, narcissistic, capable only of self-love, and unable to form strong emotional attachments to any other individual. In marriage, such individuals seek a reduplication of their own childhood home, demanding attention and protection without making any personal contribution to the marriage. If the person is a man, he may marry someone who reminds him of his mother and expect her to fill the same role for him that his mother did. If it is a woman, she may approach marriage as a refuge and source of protection, looking for a sturdy oak on which to lean, a father and not a husband. Such attitudes may prevent a satisfactory adjustment in marriage.

Physical immaturity itself presents a difficult problem of adjustment. The child or adolescent whose growth is physically retarded is at a disadvantage in a group of children of his own age. If he is not physically able to participate in their games and other activities, he may feel isolated or inferior and tend to stay by himself or develop socially undesirable methods of compensation for these feelings. In extreme cases a pattern of social withdrawal and seclusiveness may develop, which is later difficult, or even impossible, to overcome. Just as physical inferiority may be conducive to maladjustment, so may mental retardation (even of a relatively mild degree) produce psychological deviation. The child who is intellectually unable to keep up with his class or who feels incompetent in activities based on mental

ability has a tendency to develop into a behavior problem at school or at home. It is frequently noted by teachers that when a child begins to have difficulty in school work because of limited intellectual capacity, he becomes a social problem in the classroom and shows defiant, or even delinquent, behavior. Superior intellectual ability, however, gives no insurance against the development of mental abnormality, nor is it a guarantee of superior achievement in adult life.

Frustration

The varieties of reaction to frustration constitute an important aspect of personality development.[18] Frustration itself is meaningful only when considered as a psychological problem in terms of the individual, his needs, and his response patterns. Frustration comes from the interaction between the individual and the outside world. In the first years of life, frustration is usually limited to interference with bodily or physiological needs. In subsequent years, the sources of frustration become more complex, involving not only lack of gratification of physical needs, but also of the more complex personality needs, such as security, affection, prestige, and self-esteem. Some of the frustrations imposed upon the individual are culturally determined. Others, of a more individual character, are determined by the course of personal experience. Physical handicap, failure in a job, loss of prestige, lack of affection and attention by a loved one, or the death of a loved one may constitute a frustration. In some instances, it is apparent that frustration is the result of the fact that the individual set too high a standard or goal for his own performance.

Frustration is a universal human experience which receives special attention in the field of abnormal psychology because it is such a prominent neurotic complaint. There are individual differences in the source of frustration, and, more particularly, in the type of reaction to frustration or in the ability to adjust to frustration. The individual who sets goals far beyond his level of achievement inevitably experiences disappointment. The reaction to the discrepancy between what one is and what one wants to be may be very strong and can be understood only when we consider what far-flung goals had been set. The establishment of these impossible goals is itself a neurotic tendency. The feelings of failure and worthlessness, which, to the outside observer, seem completely unjustified and nonunderstandable, are but a phase of neurotic maladjustment.

Deviations occur in the type of response to frustration. The usual resolution of frustration takes place by compromise or substitution of another

type of satisfaction for the one that is denied. Neurotic patients frequently lack the ability to make this form of adjustment and tend to overreact to, and become preoccupied with, their failures. Their overreaction is apt to take the form of loss in self-confidence and of consequent feelings of worthlessness and incompetence.

A common result of frustration is aggression, which has been found to be directly related to the amount of frustration.[6] The way in which aggression is expressed, whether as direct or indirect injury to another person, as aggression turned against some innocuous object, or inwardly against oneself, depends upon the particular personality structure. In many psychopathic personalities, the reaction to even mild forms of frustration may be overt aggression against persons or objects. In such overreactions, the destructive behavior appears to an outside observer as having insufficient cause. Such psychopaths seem to lack the capacity for inhibiting overt aggression. They fail to anticipate or disregard consequent punishment or other unpleasantness.

Internal conflict

Another psychological problem that enters into personality development is that of internal personal conflicts. Needs, wants, urges, wishes, desires, ideals, morals, and practical necessities are frequently incompatible. The person may have two desires or ambitions which are mutually exclusive; he may have a sex urge which is denied expression because of his training and moral code, or his standards of conduct may themselves be in opposition to the temptations of a specific situation. The sources of such conflict are found in all the factors that influence development: the interaction of basic biological needs, of cultural patterns, of codes and rules imposed by the parents and teachers, as well as the attitudes, values, and motives that are unique for each individual. Sometimes the sources of conflict are conscious; sometimes they are unconscious. The concept of conflict between unconscious desires and the demands of reality or the conscience constitutes one of Freud's major contributions to psychological knowledge.

Conflict, like frustration, is practically a universal human experience, but it seems to play an exaggerated role in the life of the neurotic. The average person resolves a situation one way or another and forgets about it. The neurotic is unable to evolve a satisfactory solution for his conflicts. He dallies endlessly (consciously or unconsciously) over two or more possible courses of action, or torments himself endlessly over whether the correct course has been chosen. The normal person is impatient with these neurotic

conflicts, feeling that the person should make up his mind and forget about it. The coexistence of opposing elements in the personality marks the maladjusted person. Although no one has perfect integration in this sense, in the normal person the opposing tendencies are usually worked out or compromised in some way. Where the conflicts remain unresolved and indecision, worry, and tension persist, they form a powerful potential source for neurotic behavior, with or without true neurosis.

Situational alterations

In addition to the problems of adjustment and maladjustment arising from the ordinary gradual course of development, it does happen that the usual development is redirected and partially repatterned by some important or abrupt change requiring new attitudes and feelings. These events may range from the birth of another child in the family to the loss of a loved parent, failure in school, or physical injury. Such sudden alterations (reorientations) are more significant in childhood and adolescence than they are in adult life. In one sense, these events are the chance factors in development. A knowledge of the personality before their occurrence might have enabled one to predict with relative certainty how a person would react if such an event occurred, but one could never predict with certainty that the event would occur.

The histories of many psychiatric patients indicate that acute mental symptoms appeared in a situation causing conflict and worry or after some emotionally traumatic episode. It is frequently stated by untrained observers that such events were the cause of the symptoms. Breakdowns are attributed to any one of such conditions as overwork, unrequited love, or poor health. As pointed out previously, such events do not, of and by themselves, produce real mental pathology; they merely bring about the release and demonstration of personality deviations already possible. If the individual's adjustment has been poor, any added strain will have an unbalancing effect. In a fairly well-adjusted individual, only intense strain is capable of precipitating psychopathology. In some instances, if this strain is relieved, the person will soon be able to adjust adequately again. In other cases, the precipitated psychopathology continues in an irreversible fashion. The ability to recover following relief of tension is found rather frequently in the war neuroses, in which soldiers break down under trying battle conditions, when they have shown little or no previous neurotic tendency. Once removed from the battle situation, most of them improve rapidly. Even if there is some evidence of previous inadequate adjustment, the acute

symptoms are attributable to the stress of the immediate situation, which rose above the individual's tolerance level. In cases of this type, therapy of the "change of scene" or "trip to the country" variety may relieve the immediate stress and gradually cure the acute symptoms. However, if the difficulty is more deep-seated and based on fundamental personality structure defects, superficial measures cannot produce any lasting effect.

Even in those mental disorders which have a constitutional basis, the occurrence of frustration, conflict, or other circumstances taxing the adjustive powers will bring out the overt expression of certain constitutional weaknesses or deficiencies in resistance. They release forms of reaction that are latent within the personality. A low level of physical or mental resistance or a marked physiological change, such as accompanies childbirth, may act in a similar way. Because certain problems of adjustment and certain physiological changes are characteristic of different periods in human development, mental symptoms tend to be similar at the same general age span in different individuals. In this sense they are products of aging. In some conditions it appears that the morbid process itself goes through a period of maturation before it reaches frank expression. In these cases, slight inadequacies of adjustment or inappropriate reactions become more and more marked and a psychosis gradually develops with but little relationship to any environmental or experiential factors in the life history. Such a development accounts for certain conditions appearing characteristically at specific age levels, in that the process of maturation of the mental disorder requires a relatively constant amount of time.

Significance of infantile experience

Carmichael [5] has pointed out that a great many errors have been made in the study of the early development of behavior by assuming that later performance is somehow implicit or hidden in the earlier types of responses (the error of potentiality). This error is made in the question, "What adult trait is mysteriously hidden in this or that early behavior pattern?" and is avoided when the question is phrased as, "What is the nature of the many developmental stages which are actually preliminary to the particular adult characteristic which is being studied?" This point is particularly pertinent to the study of adult psychopathology.

Freud's emphasis on the importance of infantile experiences in forming adult personality has had a tremendous influence on the psychiatric and psychological thinking and speculation concerning child development. Some of these beliefs, theories, and hypotheses have sifted down through pedia-

tricians and clinical psychologists until they have reached popular magazines and practical application in the home situation.

A recent application of these concepts is exemplified by the "Cornelian Corner" group.[3, 14] The program advocated by them is directed toward the relief of cultural tensions said to be incident to the usual methods of feeding, giving toilet training, and carrying out child discipline. The program they support looks with disfavor on the separation of the new-born child from its mother immediately after birth, favors breast feeding, feeding schedule on self-demand, and the delay of toilet training until the child is "ready" for it. This program is in line with the theory expressed by Halliday [9] that rigid artificial feeding schedules and isolation of the infant are in part responsible for the increased incidence of psychosomatic disorders in later life.

Attitudes toward infant care and child raising seem to follow the swing of a pendulum. The careful, clock-watching mother sterilizing any object within reach, handling the baby as little as possible (never when he cries) is now "old-fashioned." The style has changed so that the baby is rocked, reassured, and fed on demand by the modern, "well-read" mother. Are these differences in child care and child training going to affect the incidence of psychosomatic diseases and mental disorders in later life? Actually, there is no convincing evidence that they will or that they will not.

It is a fundamental error to take any one of the details of child raising out of the frame of reference of the whole child-family constellation and endow it with independent and absolute properties. Certainly many of the generalizations concerning the effect of infantile experience on adult personality formation have been guilty of this error.

Orlansky [17] surveyed the empirical data on the theory that various features of infant care determine adult personality, from which he concluded that the findings are meager and inadequate to support the theory. His conclusion as to the significance of these early experiences is largely negative. Orlansky advocated supplanting the infant care theory with a theory emphasizing constitutional factors, the total cultural situation, and the importance of postinfantile experiences in personality formation.

One is forced to come back to differences in constitutional endowment to explain many important variations among individuals. No environmental pattern inevitably leads to a given result. In a previous study, the present authors [12] worked out a scale of early background factors conducive to insecurity and instability in collaboration with various outstanding authorities in the field of personality development. The question was repeatedly

asked, "Is there any pattern of early background factors which will inevitably lead to mental abnormality in adult life?" and the unanimous answer was "No." There were patterns which would probably lead to psychological deviation in adult life but none which would surely do so. In other words, there had to be some constitutional factor present to explain the final expression of mental disorder.

Summary

This chapter has stressed the joint, interrelated action of constitution and environment in the development of the individual. The course of development in very early life is from generalization to specificity of response. Through maturation, conditioning, and integration, more complex forms of adaptive responses are developed. The course of growth or development is made up of characteristic sequential patterns, from which definite developmental principles can be inferred. Each child has certain consistent traits and tendencies making his pattern of development unique within the framework of the general pattern. These traits and tendencies are identifiable at later stages of development.

The contribution of physical maturation, emotional attachments to the family, feelings of security, and the achievement of personal independence has been considered insofar as they bear on the normal course and rate of development. The role of frustrations, personal conflicts, and sudden reorienting experiences must be appraised in order to understand the style or form of adult personality adjustment. However, constitutional differences as well as differences in environmental factors must be recognized in the field of personality organization.

On the basis of available data, the following inferences can be made. Constitutional factors determine how much frustration, trauma, and environmental stress any person can tolerate (in other words, his psychological resistance) and the general type of deviation that will occur if he does break down. His life experiences, past and present, will determine whether or not he breaks down and (providing he does break down) the particular time at which the breakdown occurs, together with the content of his mental deviation. The important thing is that the occurrence of a mental disorder depends on developmental factors in which both heredity and experience have played a role. There are some persons whose constitutions provide them with adequate resistance to almost any sort of real psychological trauma. There are others of constitutionally weak resistance who break down under slight provocation. Constitution provides merely the

potentiality for a general type of mental disorder. The essential problem of psychiatry and mental hygiene is to understand those social, cultural, developmental factors which favor or disfavor the expression of a potentiality for mental deviation.

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Chapter 22 *Internal Environment*

WHEN AN EXPLANATION OF MENTAL ABNORMALITY IS GIVEN, IT IS NOT unusual to neglect to mention the bodily organism itself. "His mother died in an asylum"; "She has been queer since she was a child"; "He was for two months in the front line of battle"; "There's something wrong with his thinking," are commonly offered explanations. Not too often is the fact reported that the abnormal behavior might be due to an unbalanced diet or a poorly functioning thyroid gland. And yet the most spectacular solutions of certain varieties of mental illness have come from better understanding of bodily function.

The reason for this popular oversight is not difficult to understand. We accept the assumption that the mind is directly associated with the orderly regulation of the brain and nervous system and neglect the fact that the circulatory system comprised of the blood and lymph streams also regulates bodily integration and mental functions. The study of the ways in which the human body is regulated and kept in functional balance through the circulatory system includes contributions from many of the specialized sciences. Physiology, pathology, biochemistry, bacteriology, immunology, pharmacology, and internal medicine all contribute to our knowledge of the nature of the internal environment.

The physiologists Cannon [4] and Hoskins [11] emphasized certain of the broader implications which grew out of investigations of the internal environment. The human body is made up of remarkably unstable (responsive) material. We have visual experience when the eye is stimulated by the most minute energy values; we hear when the eardrum is moved less than 2 per cent of the diameter of a molecule of hydrogen; the nose is sensitive to the odor of vanillin to the extent of one part of weight in 10 million parts of air. These extraordinary sensitivities are far beyond the limits of any present-

day physical or chemical testing or measurement equipment. The basic carbohydrates, fats, and proteins are also most unstable. Sugar changes speedily to alcohol. Protein disintegrates rapidly (consider how fast a fresh egg can "spoil"). Fat quickly turns rancid. Such instabilities make possible the extreme range of differential sensory and motor responses or reactions which any living organism can make.

In contrast to the extreme instability and sensitivity of the parts of the living organism, the internal environment of the living organism is held at a remarkable degree of physical and chemical constancy. The body temperature is maintained at a relatively constant figure no matter whether the external temperature is 40 degrees below zero or 130 degrees above zero. In flying, unless altitudes of more than ten thousand feet are reached, the amount of oxygen carried in the blood remains unaffected in most individuals. The material we include in our diet varies tremendously in regard to acidity or alkalinity, but the acid-alkaline relation of the blood is maintained at a very constant level. In fact, if this acid-base ratio is but slightly altered, death results.

The way in which coordinated physiological processes maintain a stabilized internal environment has been spoken of by Cannon as *homeostasis,* meaning a relatively constant state which may vary to some extent. In studying such psychopathological phenomena as the increased output of energy in the manic state, the prolonged rigidity in catatonia, or visual and auditory hallucinations, we are faced with two possibilities. These changes may take place either in the range permitted by ordinary homeostasis, or they may accompany the establishment of a new range of homeostasis.

Much fundamental biological research is still necessary to determine the types of psychopathology which can develop without alteration in the ordinary homeostasis of the human body, and those types involving the setting up of an entirely new interrelationship of controls. In spite of almost a century of experimental biological work in relation to psychopathological states, the available knowledge is still rather limited in regard to most of them. Until we understand the physiology of these conditions, we can have no real insight into the psychological mechanisms.

Although our information about the relationship between internal environment and psychopathology is far from complete, certain of the more illustrative examples of research which have shed light on the problems of abnormal psychology may be considered.

Vitamins

Most of the research work with vitamins has been connected with nutrition and diet. At present there are at least fourteen vitamin factors known to be necessary for a satisfactory human diet. Of these fourteen there are five, all members of the vitamin B-complex, which are necessary for brain metabolism, namely, thiamine (B_1), niacin, riboflavin, pantothenic acid, and vitamin B_6. There is no evidence at present that other vitamins affect brain function.

Niacin

Pellagra is a disease old in the history of medicine, found in all countries and all races. It is usually accompanied by a definite psychosis; indeed, the disease is noted for its three symptoms, dermatitis, diarrhea, and dementia. The acute manifestations of pellagra may be fatal within a few months, but many cases become chronic and linger for several years.

In 1937 it was demonstrated that niacin (nicotinic acid) cures black tongue in dogs, a canine disease which is analogous to pellagra in human beings.[6] Niacin itself was at the same time isolated and chemically identified. The following year, Spies and his collaborators [21, 22] showed that pellagra cases responded in a dramatic fashion to niacin. All the severe, active psychotic symptoms of sixty patients critically ill of pellagra disappeared within 10 hours to 6 days following administration of this vitamin. Many of the patients were violent and acutely hallucinated: others were deeply depressed. Shortly after the beginning of niacin therapy, the agitated patients became calm; the depressed, cheerful; and legally speaking, the insane became sane. "After recovery these patients often had an excellent memory of their actions, ideas, and of their surroundings during the psychotic period. They were usually completely adjusted after treatment, except for some perplexity about the cause of their actions during the psychosis. 'What made me act that way?' and 'Was I crazy?' are questions that are frequently asked at this time. In most cases improvement was abrupt, occurring sometimes overnight." *

After relief from their acute psychoses, thirty of the original patients were kept free from mental symptoms by continued use of the vitamin and without any essential change in their previous environment. Twenty of the remaining patients failed to maintain their recovery when they returned to

* T. D. Spies, C. D. Aring, J. Gelperin, and W. B. Bean, "The Mental Symptoms of Pellagra. Their Relief with Nicotinic Acid," *Amer. Jour. Med Sci.*, 1938, *196*, 467.

their homes and no longer received the vitamin. Contact with the other ten patients was lost after they left the hospital.

As a check on the nature of the mental change produced, the investigators withdrew the administration of the vitamin in certain patients without their knowledge and substituted for it another medication of similar appearance. The usual result was that the patients who had responded favorably to vitamin therapy returned to their previous psychotic state within a week.

In a subsequent study, Frostig and Spies [7] investigated the initial nervous and mental symptoms associated with the onset of a mild pellagrous condition. They found a striking uniformity of mental symptoms which varied in intensity but showed no connection with any single type of personality deviation or with the usual environmental stresses, conflicts, or other factors entering into neuroses. Many of the patients appeared to have anxiety states with depressive features. The outstanding features were psychosensory and psychomotor disturbances, emotional instability with marked anxiety, increased fatigability, insomnia, and headaches. When the niacin was administered, the symptoms rapidly diminished in intensity and gradually disappeared entirely.

Thiamine

The first experimental study and description of the psychopathology of dietary thiamine deficiency were made by Williams and his coworkers.[26] Six physically active women, recovered mental patients, were chosen on the basis of their voluntary cooperation, lack of physical defects, absence of any history of abnormal nutrition, and quiescence of previous mental illness. For 88 days they were kept on a special diet which was rich in carbohydrates but contained very little thiamine. The subjects varied in the time of onset of mental symptoms. In general, the more active subjects were affected first. The shortest time for the appearance of definite evidence of nutritional deficiency was 12 days, the longest 48 days.

The symptoms ultimately noted by all subjects were depressive mood, generalized physical weakness, dizziness, backache, muscular soreness, insomnia, nausea, loss of appetite, and vomiting. Less regular features were general apathy, difficulty in thought and memory, fear of lights, headaches, sensations of heat and cold, fatigue of the eye muscles, and a reawakening of psychotic trends which had previously been quiescent.

After 88 days a subcutaneous injection of thiamine was given while the special diet was continued. Subjective improvement was observed within a few hours after the injection. During the succeeding 18 days, regular thia-

mine injections were combined with the restricted diet. In this period all manifestations of the previous vitamin deficiency disappeared.

Vitamin B-complex

Somewhat more recently the effect of a diet with a restricted amount of the various members of the vitamin B-complex (much reduced thiamine, riboflavin, niacin, pyridoxine, and pantothenic acid) has been studied with both a group of psychotic patients and a group of normal young men. The psychotic group consisted of thirty-six schizophrenic men who had been hospitalized at least two years at the start of the study.[15] Twelve men were kept on the restricted diet throughout the experiment. A second twelve were on the restricted diet two years and then placed on a diet with even less of the vitamin B-complex in it. The third group of twelve were maintained on the customary diet of the hospital which was not restricted in any way.

It was found that restriction of intake of the B-complex caused severe mental changes and aggravation of the preexisting psychotic trends. The character of the mental changes depended on the speed and severity of the deprivation. For example, a young man who had gained control of brief outbursts of temper and destructiveness lasting several minutes once or twice a year, went into blind rages about 8 months after severe B-complex restriction. In these furors which recurred frequently he was uncontrollable, threw heavy objects at persons, and screamed and cursed at the top of his voice. The day after the B-complex was replaced in his diet he became self-controlled.

In general the return to preexperimental behavior following B-complex replacement took place slowly in the patients whose diets had been mildly restricted and very rapidly in those whose diets had been sharply restricted. The mild restrictions seemed to permit an adaptation without too much change or distress while the severe restriction which produced metabolic impairment led to severe emotional discharges. The mental changes were not thought to be specific to the deficiency of the vitamin B-complex itself but, rather, secondary to the impairment of brain metabolism.

In a similar study [3] of eight normal young men maintained 161 days on a partially restricted intake of B-complex vitamins, followed by 23 days of acute deficiency and 10 days of thiamine supplementation, marked personality changes were obtained. The self-rating inventories of well-being, the Minnesota Multiphasic Personality Inventory, the Rorschach, and Cattell's Personality tests all showed little change during partial restriction but definite changes during acute deficiency. The scores indicated an increase in

depression, hysteria, hypochondriasis, loss in spontaneity, increased emotionality, and timidity. All these scores quickly decreased when thiamine was replaced in the diet. Psychomotor tests and a variety of intelligence tests were also employed. The mild restriction produced little or no changes in these functions but sharp restriction did produce loss in psychomotor efficiency and in the speed factor in the intelligence tests. The personality tests were more sensitive indicators of the B-complex deficiency than were the other tests.

It has been recognized for some years that certain forms of alcoholic psychoses offer symptoms which closely resemble those of pellagra. Many chronic alcoholics [2] who are daily imbibing large quantities of alcoholic beverages seem to obtain sufficient food value from the alcohol which is substituted for the carbohydrates of a normal diet. They eat little or no other food, subsisting almost entirely on alcoholic beverages. Since these beverages contain no vitamins, the drinker develops an acute vitamin deficiency which has been found by various investigators to play a role in alcoholic hallucinosis, delirium tremens, and even Korsakoff's psychosis.[14] The chronic alcoholic may be deficient in vitamins A and C as well as in the B-complex. Not only is brain metabolism interfered with but the orderly processes of digestion (intestinal and liver functions) are affected. Hence, the organic basis of delirium tremens, Korsakoff's psychosis, and chronic alcoholic deterioration is complicated. Some patients respond to niacin, others to thiamine, still others to the B-complex while some fail to respond to any one or combination of vitamins. In these latter cases it is thought that the pathology has progressed to a point of irreversible structural damage.

The effect on the mental status of senile patients of an ordinary diet supplemented by vitamin C and B-complex was studied by a group of English investigators.[23] As expected, such supplementation did not stop the inevitable development of senility, and did not affect the basic mental reactions associated with the physiological aspects of aging. However, it seemed to have a beneficial effect, in certain cases to a striking degree, upon various symptoms of senile dementia. Some of the patients became more coherent and intelligent in their conversation; others were either less depressed or less excited; others showed a decrease in aimless activity and became brighter, more friendly, and more sociable; others became more cleanly; while still others began to recognize their relatives and nurses and were able to care for themselves more adequately. Tests of psychomotor speed and coordination showed increases in the scores of the treated group, as compared with a series of patients who received medication other than the vitamins.

In general, deficiency of the B-group of vitamins results in psychopatho-

logical symptoms which are not specific to the vitamin but are secondary to the physiological dysfunctions set up by the deficiency. The greater the deficiency the more pronounced the symptoms. Within limits the symptoms are "exaggerations" of the basic personality type of the individual. Restoration of vitamins to the diet quickly ends the psychopathology.

Hormones [11]

The secretions of the ductless glands, the hormones, are released directly into the blood stream and are second in importance only to the nervous system in the integration and coordination of the body. With one exception the effect of an excess or deficiency of any particular hormone does not lead to clear-cut, distinctive psychopathology. The exception is the thyroid gland, which secretes the hormone thyroxin. This gland is an H-shaped structure lying across the larynx. If the secretion of thyroxin is deficient, the psychopathological conditions associated with myxoedema result; if excessive, the symptoms of Graves' disease (exophthalmic goiter) appear. The enlargement of the gland, commonly known as *goiter,* has been recognized for centuries. However, the relationship between the glandular disorders and psychopathological symptoms was not understood until late in the nineteenth century.

In 1873 Sir William Gull described the cases of five women whose puffy faces, bulky forms, and general lethargy indicated the presence of a common disorder, which he called a "cretinoid state" and said might be related to a defective thyroid gland. Following the introduction of surgical antisepsis by Lister in the late 1870's, attempts were made to treat goiter by surgical removal of the thyroid gland. The original procedure disregarded the parathyroid glands which are embedded in the thyroid, and usually their loss was fatal. Removal of part of the gland was found to result in a mental and physical retardation which is now recognized as myxoedema. Schiff was the first to transplant successfully a piece of living thyroid tissue into the body of an animal whose thyroid gland had been removed. The animal continued to live, so proving that death following thyroid removal was due to thyroid deficiency. Next, it was found possible to make watery thyroid-gland extracts which could be injected into the body. As long as the injections were continued, the distressing symptoms of thyroid dysfunction did not occur. A further development by Fox in 1892 was to administer the dried extract of the gland by mouth which feeding put an end to the more obvious symptoms.

Following these findings, Kocher and Wagner-Jauregg attempted sys-

tematic treatment of cretinism with thyroid extract. They obtained favorable results even when the feeding was started late in life. In general, it was found that the earlier the recognition of the cretinous syndrome and the application of thyroid therapy, the more satisfactory was the outcome.

An evaluation of this procedure was reported by Lewis [16] who followed seventy-nine cases who had been given thyroid therapy for a cretinous condition over a period of years. He found that the psychological test results indicated that it was possible for some cretins to become mentally normal. The IQ's of the cretins treated ranged from 13 to 116. The relation of the intellectual level to the treatment received indicated that the promptness and continuity of treatment were not alone decisive in determining whether and to what extent the child would remain retarded. There were a few who had attained normal intelligence despite inadequate treatment. Some had low intelligence although they had been treated regularly from the time of the first appearance of their symptoms. As a rule, however, there was a rough correspondence between the adequacy of specific treatment and the intellectual level attained. Other factors influencing psychological attainment were the state of development at which the symptoms of thyroid deficiency appeared, the degree of this deficiency, the heredity of the child as indicated by the intellectual level of his family, birth injury, and special education.

Evidently, thyroid deficiency and replacement therapy play a significant role in cretinism. Of equal importance in this connection is the fact that cretinism is a mental condition with a new range of homeostasis which may be, in part, explained in terms of a defect or deficiency in the internal environment.

Mental abnormality occurs when there is an interference with the supply or utilization of oxygen by the brain. That thyroid extract (thyroxin) increases the rate of tissue oxidation was shown as long ago as 1893. Assuming that lack of an adequate oxidation function was an element in certain psychotic and neurotic patients, Danzinger and Kindwall [5] gave large doses of thyroxin to nineteen psychotic and five neurotic patients, usually in conjunction with electric convulsive therapy. They reported that all of the psychotic and two of the neurotic patients "recovered." This procedure, which had been tried by previous investigators (with somewhat less favorable results), indicates that in selected patients the mental symptoms disappear so long as the metabolic rate can be raised and kept elevated.

Another type of investigation [8] was made on thirty-three schizophrenic patients who had rather regular periods of catatonic stupor. When the daily excretion of nitrogen was followed, it was found that a decrease in rate of

excretion (nitrogen storage) took place before the onset of the stupor and administration of thyroxin would abort the attack, end it after its onset, or reduce the likelihood of recurrence by giving maintenance doses.

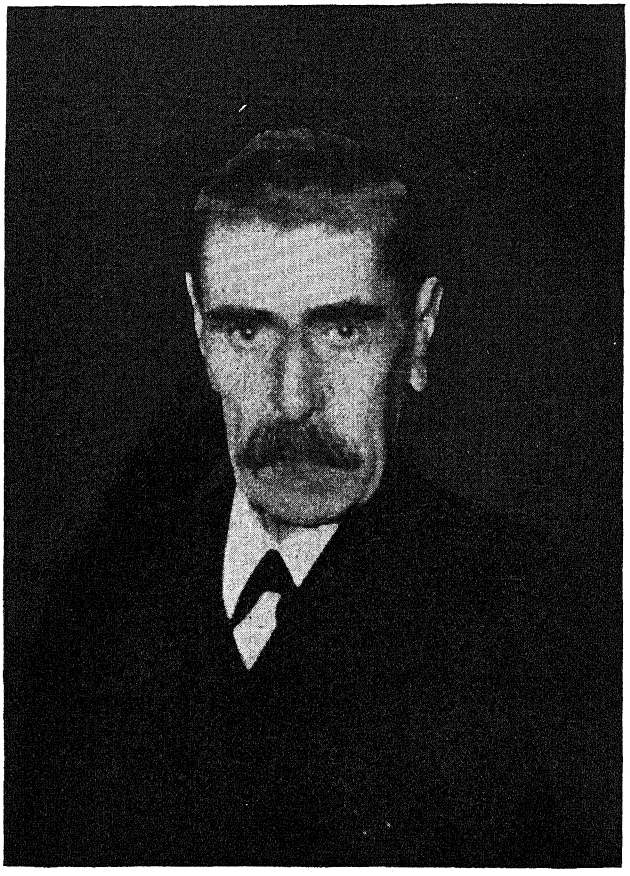


Fig. **31.** Julius Wagner-Jauregg (1857–1940).

It is thought that thyroxin acts as an agent which brings about a remission of mental symptoms in some patients. The action of the thyroxin is to make more efficient the oxygen metabolism of the brain. An inefficient oxygen usage in hypothyroidism shows itself in psychopathological symptoms.

Fever and general paresis

Following the observation of remissions in certain psychotic patients after an illness in which there was a marked fever, Wagner-Jauregg [25] pro-

posed in 1887 to produce fever artificially for the treatment of general paresis. He first used Koch's tuberculin and found that the treated paretics had a higher rate of remissions than the untreated cases. In 1912 he abandoned tuberculin in favor of typhoid vaccine which also produced fever but did not increase the effectiveness of the procedure.

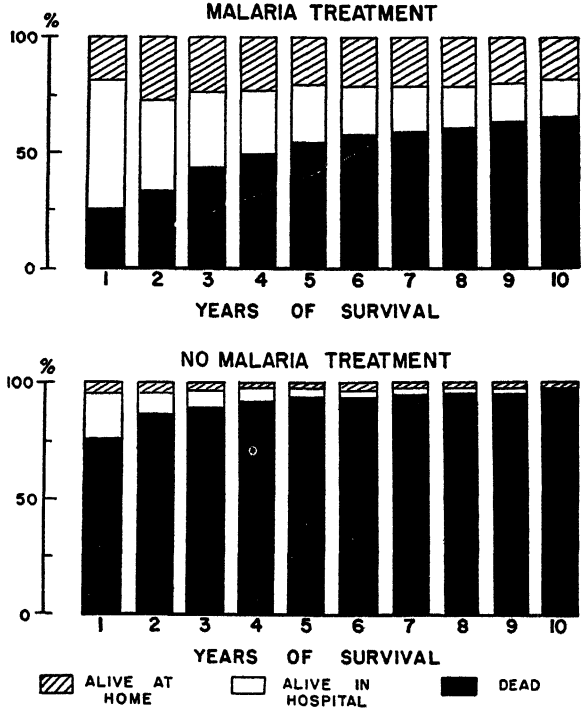


Fig. 32. Effect of malaria treatment compared to no malaria treatment in general paresis.[19]

In 1917 he inoculated nine paretics with blood from a patient who was suffering from malaria. Six of them responded favorably and three of these six were still actively at work four years after the treatment. In 1922 he reported that out of two hundred cases of general paresis he had treated, fifty had improved or recovered sufficiently to have resumed their former occupations.

A survey of twenty years' use of malaria with paretic patients in one hospital was made by Nicole.[19] The results are shown graphically in Figure 32. From this figure, which is representative of the findings of many other investigators, it will be seen that, although malaria treatment is not uniformly successful, there is a vast difference between the number of

deaths of patients who are treated and the number of deaths of patients who are untreated.

The hypothesis which led Wagner-Jauregg to the development of fever therapy for paresis was that the natural response of the body to the invasion of an infectious disease is an increase in temperature. This increase in temperature stimulates certain of the chemical reactions within the body so that the disease-resisting processes are increased in efficiency. It is considered possible that an increased temperature of itself may be unfavorable to the infectious agent.

Since infection with malaria of itself does in a small per cent of instances cause death, a variety of methods have been devised and used to raise body temperature. This is usually done by placing the entire body in an induced electrical field similar in action to that of a diatherm, or by surrounding the body with a current of hot air. These methods of inducing artificial fevers produce the same therapeutic effects with paretic patients. There is still a certain amount of dispute concerning the mechanism by which the fever stops the disease process in general paresis, although it has been established that it is the fever and not the malaria which is the effective agent. The procedure of raising the body temperature as a therapeutic measure has been applied to many diseases other than general paresis and is effective in some of them. However, it does not seem to be beneficial in any form of mental disease except general paresis.

Dilantin and epilepsy

The discovery of Merritt and Putnam [18] of the use of dilantin for the control or alleviation of epileptic seizures is an excellent example of a systematically planned procedure which ended in a positive finding. It had been known for many years that drugs which had a depressing effect such as bromides or phenobarbital were relatively effective in limiting the number and severity of epileptic seizures. It was also known that many drugs which inhibited or facilitated seizures in animals were also effective in human beings. On the basis of this knowledge, Merritt and Putnam worked out a standard procedure for inducing convulsions in cats. They applied an alternating electrical current to the animal's brain for a fixed period of time, during which a known amount of electrical energy was delivered. With this standardized method they systematically tried out both a large number of drugs known to inhibit seizures and a series of entirely new drugs. Their objective was to find a chemical substance which combined the highest anticonvulsive effect with the least toxic and narcotic action. The drugs

were tested by determining the convulsive threshold of the animal immediately before their administration, and again after an interval of from two-and-a-half to four hours, in order to allow for absorption of the drug. In the original experiments sixty-seven different drugs were tried.

In this array, dilantin (sodium diphenyl hydantoinate) was found to be especially effective in protecting animals from electrically induced seizures and at the same time it had little narcotic or sedative effect. Since it was well tolerated by cats, dogs, and rats in large single doses as well as in long-continued daily doses, it was considered safe to be used with epileptic patients.

Two hundred patients were given dilantin over a varying length of time. Of the 118 patients who were subject to frequent *grand mal* attacks, 58 per cent were completely relieved and an additional 27 per cent showed a marked reduction in the number of attacks; in the remainder there was little or no improvement. In a group of 74 patients with frequent *petit mal* attacks, complete relief was obtained in 35 per cent and a marked reduction in 49 per cent; in the remaining 16 per cent there was only slight or no improvement. Of 6 patients suffering from psychic seizures, complete relief was obtained in 4 and very marked improvement in the other 2 cases. In a subsequent study of 39 patients subject to such psychic seizures (either alone or associated with *grand mal*), 62 per cent were found to be completely relieved and 23 per cent greatly improved. Out of 267 epileptic patients included in a later report, a total of 227 had responded favorably to dilantin treatment, in that their seizures were either completely controlled or markedly reduced over a period varying from two months to two years.

The original findings have been confirmed by many subsequent investigators. In addition to dilantin, there are now several other drugs of similar action some of which are appropriate for specific kinds of seizures. It is the general impression that the mental deterioration shown by many untreated epileptic cases appears less frequently or is less pronounced in patients treated with dilantin or similar drugs.

Shock therapy

For many years it had been known that severe physical shock or injury (and occasionally severe psychological crisis) seemed to "agitate" some psychiatric patients to such an extent that they were shaken out of their psychosis. In the early 1930's Sakel,[20] a Viennese physician, was investigating the effect of overdoses of insulin on morphine addiction. He attempted in this manner to upset the balance of the autonomic nervous system, and

actually observed favorable results in certain addicts. This finding led Sakel to formulate the following hypothesis: In the normal functioning of the nervous system certain pathways are established and followed by the nervous impulses having to do with the ordinary behavior and mental life of the individual. If some toxin or excitant hormone is carried by the blood stream and reaches the nerve cells of the brain, there may be either (*a*) a blocking of ordinary pathways, particularly those which have been most recently established by activity, and consequently an exhibition of more primitive responses; or (*b*) a diversion of impulses into new pathways which may give rise to odd and bizarre types of response. According to this theory, insulin coma would either relieve the blocking of the pathways or give opportunity for the new, incorrect pathways to disappear and permit the establishment of correct connections. Insulin in overdoses acts to reduce the amount of sugar circulating within the blood and thereby withdraws sugar from the tissues of the body, including the brain. Withdrawal of sugar has an anesthetic effect upon brain function, so that the patient in insulin coma acts as though he were deeply anesthetized. The coma is overcome by comparatively large amounts of sugar, given either by mouth or intravenously.

Since schizophrenics exhibit odd and bizarre behavior, Sakel thought it worth while to submit them to temporary insulin coma with the hope of altering their behavior. He found, as have many others since, that this procedure produced a beneficial effect in a considerable number of schizophrenic patients. The method leads in many instances to a complete remission.

About the same time that Sakel was doing his early experiments with insulin, Meduna [17] began the administration of metrazol to produce convulsions in schizophrenic patients. The idea had persisted in medical literature for many years that it was exceedingly rare to encounter dementia praecox and epilepsy in the same individual. From this Meduna reasoned that epileptic convulsions protect the individual from the development of schizophrenic symptoms. Metrazol, which is a chemical closely allied to camphor, was known to produce unconsciousness with violent seizures in humans. On this basis, Meduna worked out a therapeutic procedure which resulted in amelioration and remission of symptoms in many schizophrenics following a series of convulsions induced by metrazol. (Hoch [10] has shown that schizophrenia and epilepsy are neither related nor opposed to each other.)

Somewhat later (1938), Cerletti and Bini [18] developed another method to bring about the convulsive seizures which were occasionally observed in insulin coma and were considered the main therapeutic agent in metrazol

shock. They made use of ordinary 110 volt, 60 cycle alternating electrical current to produce convulsions, first in animals and subsequently in psychiatric patients. Today all three methods, insulin, metrazol, and electrically induced convulsions, are applied to mental patients with varying degrees of success depending on a variety of factors.

The earlier and highly optimistic reports concerning the remission rates following shock therapy have not been completely borne out through succeeding years of experience. Insulin shock seems most effective in milder schizophrenic attacks. Metrazol is used when schizophrenics do not respond to insulin. Electric shock gives the most satisfactory results in depressions, severe neuroses, and in involutional cases.

There is at present [13] no regularly accepted physiological or anatomical explanation for the therapeutic effect of shock as it is observed in a certain number of psychiatric cases. Some believe that the shock, no matter how induced, stimulates the autonomic nervous system. As a result, the regulating mechanisms of the body become more efficient and act to restore normal healthy function which is absent in psychotic individuals. Others hold that the effect of shock is to throw into action certain specialized blood cells which are known to operate both as agents of repair and as scavengers in infectious or toxic conditions. Still others claim that shock therapy causes actual damage to the brain tissue. The repair of this damage may lead to a restoration of normal function and to a disappearance of malfunction which has been responsible for the psychotic mechanisms.

Some psychiatrists have postulated that shock therapy is effective for psychological reasons and that it does not depend upon any physiological changes. Their theory is that the shock is regarded by the patient as a form of punishment which is gratifying to his masochistic tendencies and hence of therapeutic value. Actually, little credence can be given to this viewpoint since it is known that in both insulin and electric shock the unconscious state occurs without fear or apprehension. Although convulsive seizures are unpleasant for others to witness, they are not really part of the conscious experience of the individual who is receiving the therapy. The fundamental basis of the relationship between psychopathology and either insulin, metrazol, or electric convulsive treatment is still unknown.

Mental deficiency and physical defect of prenatal origin

A great variety of physical defects and deformities are due to arrest or deviation of anatomical development during prenatal life. As long ago as 1912, Stockard [24] pointed out that such deviations cause the death of about

23 per cent of the human race before or shortly after the time of birth and handicap a certain proportion of the survivors throughout their lives. He further pointed out that every sort of defect may occur and that the type of defect or deformity is determined by the developmental period of prenatal life at which the arrest occurred. It has long been known that maternal syphilis was associated with occasional mental defect, congenital blindness and deafness, and skeletal deformities.

There are certain factors naturally occurring in the blood which are known as Rh antibodies and antigens.[9] When the father is Rh-positive and the mother Rh-negative the incompatability *may* lead to the death of either the mother or the child during pregnancy or childbirth. This incompatibility is far from invariable in its lethal effect. Trouble may occur in the second or third pregnancy but there are instances of no difficulty even after five or six pregnancies. Adequate studies of the blood during pregnancy will give indications of any danger which may be associated with the incompatability of Rh. Recently the investigation of the blood groupings of mentally defective children and their mothers suggested that milder forms of incompatability may account for a considerable percentage of undifferentiated mental deficiency. Just at present, the amount of unascertainable information, uncontrolled factors, and the like leave the observations on both syphilis and Rh interesting but inconclusive.

In 1941, Gregg noted among babies in Australia a relatively large number born with congenital cataract. On investigation he found that in 68 out of 78 instances the mother had had rubella (German measles) during pregnancy. A medical commission was set up to investigate this finding. They not only confirmed it but found that when mothers had had rubella during pregnancy their babies were apt to have defects of the heart as well as of the lens of the eyes. Subsequent investigations of 136 infants born to mothers who had rubella during the early months of pregnancy showed that 72 per cent had cataract, 58 per cent congenital heart disease, 53 per cent multiple anomalies, while 61 per cent gave evidence of mental retardation. The grouping of rubella by month of gestation for 100 babies with developmental arrests is shown in Figure 33. The facts now available furnish definite evidence that an "environmental" agent, such as rubella or syphilis, operating after fertilization of the human ovum may kill the embryo (rubella during the first 3 months resulted in 80 per cent abortions or stillbirths) or merely arrest the development of particular organs, usually the brain, eyes, ears, heart, or bones.[1, 12]

It was pointed out in Chapter 17 that the mongoloid type of mental defect occurs most frequently in children born to older mothers.[9] A com-

parison of the maternal ages of 2,822 mothers giving birth to mongoloid infants to the ages of more than two million mothers who produced normal infants was shown in Figure 21 (page 269). Three factors have been identified in the causation of mongolism, hemorrhage during gestation, mechani-

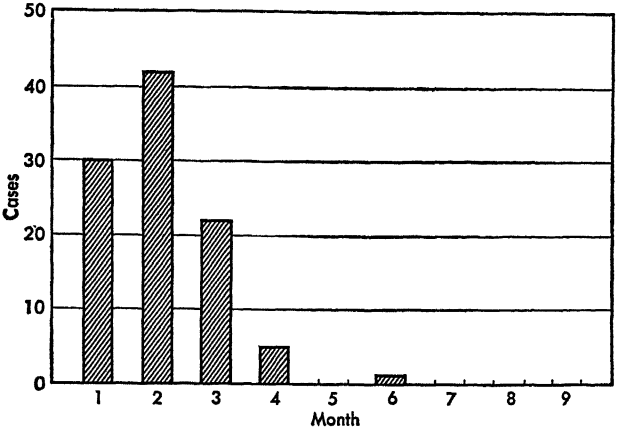


Fig. 33. Relationship between month of pregnancy at which mother had rubella and per cent of mentally or physically defective offspring.[12]

cal disorders of the uterus (retroflexion or prolapse), and intercurrent infection such as rubella, influenza, or mumps. The arrest in development which shows itself as mongolism occurs at about the eighth week of pregnancy.

On evidence now available it is known that mental retardation can result from prenatal effects of Rh incompatability, X-ray or radium irradiation, anoxia, syphilis, rubella, and probably other types of intercurrent infections. As Stockard pointed out, the arrest in development may be brought about by any of a wide variety of agents that are somehow effective. The arresting effects of intercurrent disease usually occur during the first three months of pregnancy.

Comment

These examples of contributions to our understanding of the abnormal psychology of the individual indicate that almost every therapeutic advance in psychopathology has been greatly enhanced by the application of the findings of the basic sciences to the problems of the internal environment. If future progress in the therapy of the mental disorders is to be predicted on the basis of past experience, it seems safe to expect that the final solution

of many of the major problems of psychopathology will come from the biological sciences.

It is true that the discovery of a biological basis for one or another psychopathological state does little to clarify the psychology of the event. For example, the fact that some psychotic patient is suffering from a lack of niacin does not explain why he exhibits a mania rather than a depression. Nor do we gain much insight into the mental mechanisms if we find that a psychosis has been cured by niacin. It is essential to realize, however, that psychological research can lead to important biological discoveries if it is carried out in cooperation with the other basic sciences. In this light, psychological investigation may be expected to be of particular value in directing attention toward those biological mechanisms which are basically changed in certain of the mental disorders.

The relationship between psychopathology and variation in internal environment stands out as one of the best opportunities for promoting a better understanding of abnormal psychology. Our knowledge of this aspect of human life is still far from complete, but it is sufficient to indicate some basic correlations and to suggest other possible relations. One way of formulating these relationships is as follows:

1. Certain mental disorders (cretinism, myxoedema, Graves' disease) are known to be characterized by unusual homeostasis which is based on thyroid dysfunction.

2. Certain changes in homeostasis can be induced experimentally in any normal person and can be shown consistently to result in abnormal mental states; for example, the psychopathology attendant on vitamin deprivation or oxygen lack at high altitudes.

3. Certain mental diseases are considerably improved or completely cured by shock therapy. It is quite possible that the therapeutic effect is brought about by an alteration in homeostasis.

4. The control of the sharp homeostatic change of epileptic seizure by drugs such as dilantin goes far to prevent the psychopathology of mental deterioration. The action of fever in general paresis is another example of the same thing.

5. The arresting action of certain agents on prenatal development produces an irreversible structural defect with subsequent psychopathology.

These formulations support the belief that a close correlation exists between psychopathology and physiological homeostasis. Hence, it is necessary to investigate every psychopathological state with the objective of clarifying whether or not a change in physical homeostasis may be involved. The fact that no physiological changes have been found in many neurotic

or psychotic conditions may mean either (*a*) that no change exists, or (*b*) that no adequate measures or indicators of such changes are now available. To repeat, many of the major therapeutic advances in neuropsychiatry have come from investigations of particular changes in the internal environment. It is safe to predict, therefore, that much of the future progress will come from the same sources.

Summary

The internal environment consists of the totality of circulating fluids of the body. These circulatory systems, together with the central nervous system, act to regulate the life adjustment of the organism. The tissues of the body are extremely sensitive to stimulation. The internal environment is held very constant through an elaborate integrative mechanism which is called the "process of homeostasis."

The action of the group of B vitamins is such that psychopathological states are produced when there is a marked deficiency of B in the diet. In some psychotic states addition of the B-complex to the diet diminishes, more or less completely, the psychopathological symptoms.

Defective development or dysfunction of the thyroid gland produces cretinism, myxoedema, or Graves' disease. The first two syndromes are alleviated by the administration of thyroid extract, the third by surgical removal of part of the gland.

General paresis, which formerly was a rapidly deteriorating process with terminal dementia and early death, is now usually arrested by one or another fever therapy. Both thyroid medication and fever therapy were, in part, the discoveries of Wagner-Jauregg.

The discovery of dilantin and similar drugs has gone far to solve the problem of control of epileptic seizures and of prevention of mental deterioration in epilepsy.

Shock therapies are by far the most effective method available for the treatment of most forms of psychosis and many forms of neurosis. No adequate physiological or psychological explanation of the effectiveness of shock therapy has been made.

The discovery of the relationship between rubella during early pregnancy and mental and physical defect in the offspring opens the way for more adequate public health measures which should prevent some part of the future burden of mental deficiency.

Although the beneficial effect of some drug, hormone, or vitamin does not explain the nature of the actual psychopathological phenomena involved,

it is true that psychological studies have served and should continue to serve as indicators of profitable points for research on the biology of mental disorder.

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SECTION THREE
EXPLANATIONS

Chapter 23 *The Brain*

THE FIELD OF ABNORMAL PSYCHOLOGY HAS BEEN PRESENTED BY SOME authorities with no more than a passing reference to the brain. For example, Freud's entire system of psychoanalysis is built up with only a trace of comment as to the activity of the central nervous system. A psychopathology without a neurological basis is a mind without a brain; an incomplete presentation which neglects valuable information. We must know what the brain, as an organ, can do and what it cannot do, in order to think accurately about the problems of abnormal psychology. We know that organic pathology of the brain results in some forms of psychopathology (Chapters 12, 13, and 14). It is quite possible that many other forms of abnormal psychology will be found to be based on actual organic lesions or dysfunctions of the brain or of the central nervous system. We need only remember the history of general paresis, which was for many years believed to be devoid of any essential neurological foundation, to reenforce this point.

Until 1800 the functions of the brain, as we conceive of them today, were almost completely unknown by the medical men and other scientists of the time. Oddly enough, it was Gall, the inventor of the discredited system of phrenology, who was responsible for the notion that the activities of the mind depend upon the substance of the brain and are, indeed, localized in the brain. The claims and dogmatic statements made by Gall led physiologists and anatomists to investigate experimentally the possible truth in what he said. He was wrong on many points, but he was right often enough to stimulate systematic work of others in the field.

The idea of the body-mind relationship during the Middle Ages was that the soul, as the principle of life, was distributed to various parts of the body, and that, together with the crude organic substances of these parts, it acti-

vated the body by three kinds of "spirits." The liver concocted from food the *natural spirits*; the heart gave rise to the *vital spirits*; while the brain manufactured the *animal spirits*. Robert Burton (1621) wrote concerning the treatment of melancholia by head injury or brain operation, "The head to be shaved and bored to let out spirits, which without doubt will do much good; I saw a melancholy man wounded in the head with a sword, his brain-pan broken; so long as the wound was open, he was well, but when his wound was healed, his dotage returned again." * These spirits were thought to be distributed to the body by means of the blood vessels and the nerves.

In contrast to such speculations, the fact was known from the time of Aristotle that cutting or injury of the brain substance itself was not attended by pain or any other sensation. It was also known for centuries that stimulation of much of the brain is accompanied by neither a change in consciousness nor in motor activity, while injury or destruction of parts of the brain were known to lead to marked changes in behavior and conscious life. In the same way it has long been known that if some disease process affects the brain, its supporting tissues, or its blood supply, there is usually a deterioration in both behavior and conscious mental life.

All of these facts and relationships were known to the ancients, but only during the past century and a half have they led to real experimental studies of the relationship existing between the brain and our conscious mental life. Only recently have we begun to understand very much in a positive way about the functions of the brain as an organ of the body.

The evolution of the brain

All animals, including man, respond to environmental changes through special organs, the effectors. Of the effectors, muscles are the most important, although cilia and glands are also instruments of action. That effectors may operate in a coordinated fashion is made possible by a system of interconnections. In those forms of animal life where the organism is composed of more than one cell, there is a beginning of the specialization of function, some cells acting as contracting units, others as digestive units, and so on. In the larger organisms where there is an increase in the number of units, there appear cells which have the specialized function of connecting the outer skin surfaces to underlying muscles, so serving as simple triggers by which the muscles are excited to activity. These units are the *receptor neurons* which are the most primitive type of nervous tissue. They first appear

* From R. Burton, *The Anatomy of Melancholy*. (Edited by F. Dell and P. Jordan-Smith), New York, Rinehart, 1927, 590.

in animal forms such as the sponge, but are representative of the basic pattern of the sensory equipment of all higher forms, including man.

In the more complex of lower animal forms, these receptors connect with numerous deep-seated nerve cells whose branches join, constituting a *nerve-net* that spreads throughout most of the animal's body. Such nerve-nets are, primarily, conducting systems which transmit impulses from receptors in one part of the body to muscles in distant parts of the organism. Usually, these nets are so undifferentiated that the impulses spread in all directions. In higher animal forms there evolves a *polarization* of conduction which limits the direction of transmission so that the impulses can pass only in one way.

Passing from the simpler animal forms to the more complicated, one finds the appearance of groups of nervous elements (localized nerve-nets). These groups unite and so provide a more adequate means of interconnection and communication. This development of nerve-cell grouping is a gradual one and is accompanied by further specialization of polarization, facilitating a more definite point-to-point conduction. This process of specialization involves the development of different kinds of nerve cells—the receptors, effectors, and connectors. The receptors usually connect some point on the external surface with a centralized grouping of nervous tissue. The effectors extend from this central grouping to some point on a muscle or gland. The connectors primarily serve as a means of connection or communication between many receptor and many effector cells. The growth, differentiation, and specialization of these connector cells constitute the pattern of development of the central nervous system and of the brain itself.

The specialization of function, particularly of the receptors in the head end of the developing organism, led to the greater development of connecting nervous mechanisms at that end of the organism. There has been a gradual development and specialization of function of the nerve mass of this head end, which culminates in that exceedingly complex organ, the brain. The differences in the possibilities of reaction and adaptation which exist between any two animal forms depend largely upon the possibilities for interconnection within the brain and nervous system. In the evolution of the nervous system and brain, the more primitive elements still remain even when a new organization appears. There is a superstructure of new and more complicated controlling and connecting mechanisms, so that we have in the evolutionary series a conservation of the old with the addition of new or progressive elements from time to time. The conservative, fixed behavior patterns control the lower animal forms, while in mammals the progressive, plastic, modifiable patterns predominate.

Relation of brain structure to function

The search for a physical basis of consciousness, particularly a neurological basis for psychopathology, has gone on for over a century. Some points have been clarified but there is still no answer to many very pertinent questions concerning brain function in mental disorder. Two basic and opposed theories serve as the point of departure for most thinking on these problems. (*a*) *Mass action* implies that the brain (or at least the cerebral cortex) works as a whole. Just as all of the stomach is concerned in digestion so is all of the brain concerned in the mental life of the individual. (*b*) *Localization* implies that behavioral reactions and mental functions are separately dependent on specific areas or portions of the brain. Just as specific portions of the field of vision are lost if specific portions of the retina within the eyeball are damaged, so it is thought that loss or damage to specific portions of the brain gives rise to specific losses in mental function.

Flourens (1842) was one of the first to hold that intelligent behavior is an indivisible function depending upon the activity of the entire brain. He said: "The cerebral hemispheres are the sole organs for the perceptions and volitions . . . [which] have the same distribution in the hemispheres; the faculties of perceiving, understanding, and willing constitute a single function which is essentially unitary . . . Excitation of one point in the nervous system involves all others; there is community of reaction, of changes, of energy. Unity is the great principle which rules, is universal, dominates all. The nervous system forms a single unified system." *

The experimental work on localization was made possible by David Ferrier's (1876) introduction of induction currents for electrical stimulation of the brain. Sherrington has stated the localization viewpoint as follows:

> The brain excited at certain points evokes motor acts, or bits of motor acts, *e.g.*, of a limb, of one side of the face, *etc.* The phrase went that at this part or that part of the brain this or that movement of the arm, or of the face, was "represented." It might perhaps have been expected that these movements of the body so easily provoked by the application of electricity to this or that point of . . . the brain, would be just the stereotyped "reflex" movements which can be excited . . . from the skin and spinal cord. Instances of such reflexes are, for example in cat and dog, the rhythmic scratching with the hind-foot which grooms the hairy coat, or the twitch of the ear when irritated as by a fly, or the shaking of water from the wetted coat, or standing or walking. But no. These movements

* K. S. Lashley, *Brain Mechanisms and Intelligence.* Chicago, University of Chicago Press, 1929, 4.

are not evoked by stimulation of the brain. They are reflex, but not, it would seem, "represented" in the cortex. . . . They seem rather fragments of motor behavior which, if we could elicit the whole train, would bear the character of . . . the fringe of a composite act whose focal part occupies the attention. . . . But it cannot be said that anything closely resembling the performance of a deliberate act, such as one of those which in sequence occupy our attention and make up what counts as our "doing" for the waking day, has ever been evoked by electricity or any other artificial means from any part of the brain. Thus, no "word" or even an exclamation or a laugh or groan has ever been elicited, although "centres representing" speech have been, on other grounds, identified. . . . Further, it has been found that the several senses, sight, hearing, smell, are "localized" in certain areas of the brain. This was called sensory localization.*

The accumulation of knowledge has shown that neither the explanation in terms of mass action nor of specific localization will account for the observed facts. A number of possible explanations which are intermediate between mass action and localization have been proposed. No explanation so far advanced will cover all (or most) of the observable changes brought about by brain damage or occurring in psychopathological states.

Functions served by different portions of the brain

Within recent years great advances have been made in brain surgery and particularly in what is called "psychosurgery," that is, the use of brain surgery for the alleviation of psychopathological states. Going hand in hand with this has been the systematic psychological study of psychosurgical patients. It has been shown that operations performed on different portions of the brain do give rise to different psychological changes. (The location of the lobes of the brain is shown in Figure 34.)

Occipital lobes

The complete surgical removal of the occipital lobes results in permanent pattern blindness, although visual ability to distinguish daylight from dark still remains. In man this operation has been performed only when destructive brain tumor made it necessary. Working with monkeys, Klüver [10] has shown that the removal of the cortex of the occipital lobes results in complete and permanent loss of visual functions which depend on the perception of patterns. The animals were able to learn and to perform tasks, the stimulation for which depended on the total amount of light reaching the eyes.

*C. S. Sherrington, *Man on His Nature.* New York, Macmillan, 1941, 237–238.

When the primary visual areas of the occipital lobes (Figure 34, E) in man are damaged there is a sharp constriction of the field of vision, which constriction corresponds to the area of damage.[8] When the brain area immediately surrounding the primary visual centers is damaged there are inter-

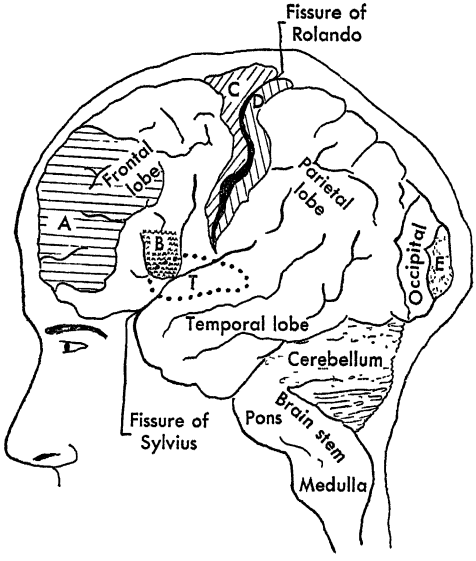


Fig. 34. Diagrammatic representation of the surface of the left side of the human brain. A–Region involved in psychosurgery (Brodmann's areas 9, 10, 46). B–Broca's area of motor speech representation (Brodmann's area 44). C–Primary motor area (Brodmann's area 4). D–Primary sensory area (Brodmann's area 1). E–Primary visual area (Brodmann's area 17). T–Region of the thalamus and hypothalamus (these are in the interior of the brain).

ferences with spatial perception and visual memory. Stimulation of the occipital cortex and its surrounding areas is reported by the patient as flashes of light but not as organized visual hallucinations.

An interesting exception to this general rule has been reported by E. Freeman.[4] An eleven-year-old boy was subject to seizures, nervousness, and headaches. On neurological examination it was found that the left occipital area showed evidence of a progressive anatomical destruction. At operation it was found that the occipital cortex of the left hemisphere of the brain was completely absent. A cystic tumor in the area was opened and removed. One month following operation, examination disclosed that there was no loss in pattern or color vision, nor was there any constriction in the visual field for either eye. Careful examination showed that the boy had normal vision for the entire field of each eye, but with the normal brain

mechanism for the left half of each retina absent. Since his brain damage was due to a very early injury, visual function, in this case, must have been taken over by other parts of the brain.

Temporal lobes

For many years the temporal lobes have been believed to be connected in some way with speech and with audition, although direct stimulation of these areas failed to produce any response in either man or animals. Klüver and Bucy [11] investigated the functions of this area by the bilateral removal of the temporal lobes in monkeys. They found most pronounced changes in behavior and "personality" following bilateral removal, but no change following unilateral removal.

The monkeys exhibited the following symptoms: (1) forms of behavior which seem to be indicative of "psychic blindness;" (2) strong oral tendencies in examining available objects (licking, biting gently, chewing, touching with the lips, "smelling"); (3) a strong tendency to attend and react to every visual stimulus; (4) marked changes in emotional behavior or absence of emotional reactions in the sense that the motor and vocal reactions generally associated with anger and fear are not exhibited, and (5) an increase in sexual activity. . . . Differential reactions to visual stimuli established preoperatively were seriously disturbed after bilateral temporal lobectomy, but it was possible to reestablish the response through training. The ability to "generalize" in responding to visual stimuli did not seem to be impaired.*

Several of these changes were quite unusual and were made the basis of extensive study. Psychic blindness is a symptom which is seen in an organic brain condition known as Pick's disease. Individuals having this disease will approach any object without hesitation, but are unable to recognize what the object is on the basis of vision alone. Recognition takes place only by means of taste, smell, touch, or sound. In these monkeys, if a succession of pieces of food and of nails was presented at regular intervals, the animal would pick up both the food and the nails until it ceased to react to either. The food was eaten while the nails were discarded after examination by mouth. After such a test, there might be several hundred nails on the bottom of the cage, which the monkey would continuously pick up and reexamine, even though they had all been rejected only a few minutes previously. In a normal monkey the nails were consistently rejected and the food consistently accepted on the basis of visual evidence alone.

* H. Klüver and P. C. Bucy, "Preliminary Analysis of the Functions of the Temporal Lobes in Monkeys," *Arch. Neurol. Psychiat.*, 1939, *42*, 1000.

The strong tendency of the experimental animals to attend and react to every stimulus seemed compulsory, irresistible, or forced. They appeared compelled to react to objects, events, and changes in their environment. This visual attention with inspection was not confined to objects within reach, but was set off by almost any kind of object, near or far. They did not seem to discriminate between significant and insignificant elements in the entire situation but reacted indiscriminately to a speck of dirt, a dot on a necktie, a whiff of smoke, a snake, a nail, or a bit of sawdust, no matter whether the object was important, unimportant, dangerous, or indifferent.

The profound changes in emotional behavior, specifically, the almost complete absence of expressive emotional reactions which are normally associated with anger and fear were most outstanding. The operated animal showed no fear of anything. Snakes, larger animals, human beings, and other animate objects which constituted a threat to the safety of the animal, were reacted to with indifference. In some animals the expressions of emotion (chattering and facial expressions) were lost completely; in others, expressiveness reappeared after several months. The increase in sexual activity was most marked and diverse. The animals were hypersexed, not only when with other animals, but when alone. All forms of overt sexual responses were exhibited and continued over long periods of time. These manifestations of hypersexuality had no counterpart in the normal monkey, and did not appear in monkeys in which only one temporal lobe had been removed.

No other simian brain operation has ever been found to bring about such marked changes in behavior as this bilateral removal of the temporal lobes. Other than the psychic blindness in Pick's disease and the behavior of certain children who have suffered from encephalitis, it bears little relationship to human psychopathology. (Some postencephalitic children seem compelled to touch and examine every object about them without uttering a word during the process.)

In an attempt to relieve the gross symptoms of schizophrenia (auditory hallucinations, agitation, and emotional distress) Obrador [16] did a bilateral temporal lobotomy on two patients. The operation consisted of an incision across the tip of the lobe severing the fibers extending from the lobe to midbrain centers. These incisions did not relieve the psychotic symptoms nor did they produce the behavior changes described by Klüver and Bucy. Subsequent frontal lobotomy (see below) in one of these patients did reduce the emotional disturbance associated with the hallucinations without decreasing the hallucinations themselves.

Parietal lobes

The portion of the parietal lobe just adjacent to the frontal lobe (Figure 34, D) is the primary center for cutaneous sensibility. Stimulation of this area is reported as tingling, numbness, feeling of movement, and the like, in specific areas on the opposite side of the body from the stimulated cortex. Direct electrical stimulation of other parts of these lobes was found by Penfield[17] to produce visual and auditory hallucinations in certain patients (Chapter 24). Various neurologists have reported that tumors or damage to the central portions of one parietal lobe produce disturbances or failure in the localization of the body image of the side opposite the brain damage.[15] (Body image is the mental picture one has of one's own body.) Patients with large lesions lose the awareness of the existence of the opposite side of the trunk, leg, or hand. They may even protest that their arms are not their own or that someone is crowding against them trying to push them out of bed.

In a group of twenty-two mental patients (seventeen of which had had previous frontal lobotomy) a bilateral parietal lobotomy was performed in an effort to sever the fibers connecting the parietal cortex with other brain centers.[21] It did not seem as effective in relieving mental disorders as frontal lobotomy but certain patients did lose certain psychotic symptoms, which the frontal lobotomy had not brought about.

Frontal lobes

The frontal lobes of the human brain are more prominent than the frontal lobes in any animal brain. Other than motor responses brought about by direct stimulation of the motor area, the frontal lobes constitute a "silent area" from which no response can be obtained on stimulation. Frontal lobe tumors give rise to a variety of symptoms difficult to classify. Since nothing definite could be attributed to this portion of the brain it was a favorite place to locate "higher mental functions." The earliest experiments on the frontal lobes were done by Flourens in 1824, who found no functional localization except in the most general sense.[6] He concluded that the frontal lobes acting in harmony with the rest of the brain mediated the higher perceptual, associative, and executive functions of the mind. It was subsequently found that electrical stimulation of that portion of the frontal lobe just adjacent to the parietal lobe (motor area) (Figure 34, C) gave rise to involuntary motor activity of the opposite side of the body and that removal of this portion of the frontal lobe was followed by paralysis of the

opposite side of the body. Under certain conditions the paralysis more or less disappeared after several weeks or months. Another portion of the frontal lobe (Figure 34, B) is known as Broca's area. The relation which has been supposed to exist between this area and "motor" speech will be discussed in Chapter 28.

Psychological experiments were carried through with animals before and after removal of portions of the frontal lobes. Little or no effect was produced by the removal of tissue from one lobe. When both frontal lobes were removed the restlessness and appetite of the animal were increased. There was more distractibility and a tendency to shift from one activity to another. There was little or no evidence of loss in intellectual, memory, or learning ability. There was evidence with chimpanzees and monkeys that the ability to do the delayed reaction test was interfered with. In this test the animal sees food bait put under one of several cups; a blind is interposed for a varying period; the animal is allowed to try to choose the baited cup.[2]

Before operation one chimpanzee "went to pieces" and had temper tantrums when such problems became too difficult. After removal of both frontal areas there was a change in personality. In contrast to temper tantrums, she sat quietly and showed no excitement. It was impossible to evoke in the experiments any of the emotional display she had shown before the operation. An "experimental neurosis" had been abolished.[9]

In 1935–1936 Moniz, a Portuguese neuropsychiatrist, applied this observation to the surgical treatment of twenty mental patients and found that the operation resulted in recovery in seven patients, improvement in seven, and no improvement in six insofar as their psychotic status was concerned. Freeman and Watts [4] carried out the first operation of this sort in America in September 1936. Moniz originated, and Freeman and Watts developed, a new sort of operation which is called frontal lobotomy (or leucotomy). It consists of opening two small holes in the skull, one on either side, and inserting a leucotome (blunt dissector) into the brain through these holes. The leucotome is inserted to the depth of about six centimeters on successive sides and moved in sweeping fashion so as to sever the white connecting tissue running between the thalamus and the frontal cortex (Figure 34, T and A).

The use of this surgical technique with mental patients produced some astonishing results, particularly a reduction of the self-conscious emotional reactions and a loss of "psychic pain." After recovery from the operation, many of the patients who had been totally disabled by their psychoses were able to return to the occupations which they had followed before their ill-

ness. Old people, so depressed that their lives had become a burden to them, were markedly improved because of the serenity of disposition which followed the operation. The best results were obtained in involutional melancholia, and obsessive neuroses, with fair results in dementia praecox.

The mental changes which take place during and following the operation are psychologically interesting. Since the surgery can be done under local anesthesia, the patient may remain conscious throughout the procedure and hence is able to report adequately. An abrupt change in the mental state takes place when the last of the white connecting fibers are cut. So long as part of the connections are intact the patient remains oriented, can carry out intellectual problems of considerable complexity, and, although quieter, shows about the same degree of anxiety and distress as he did before the operation was started. Immediately upon final severing of connections, the patient becomes unresponsive, disoriented, and confused, and no longer exhibits any anxiety. At this point an occasional patient may become more lively and engage the doctor in animated and sometimes humorous conversation, or he may sing or say his prayers. But all are unable to recall anything concerning their immediate surroundings and, while the skin is being sutured, they may deny that they have been operated upon. During the first few days following the operation, they remain somewhat confused and disoriented. After a week they regain orientation. Beginning with the second week, the confusion usually clears up so completely that the patient is able to return to his home.

Patients who have undergone this operation are usually different from their prepsychotic selves, although sometimes the difference is not immediately recognizable. They are apt to be somewhat more indolent; they are often outspoken, saying the first thing that comes into their heads rather than waiting to think what response the remark will produce in others. They are unaware that they are hasty, undiplomatic, and tactless. The operation, when successful, seems to break up or remove fixation on morbid emotional feelings. As one patient expressed it, "The sensation has moved from the center of my attention to the periphery."

In connection with the change in mental symptoms Watts and Freeman [20] observed that several patients who had also complained of unbearable physical pain before operation were free from complaints of pain after lobotomy. At follow-up examinations months later they had no recollection of the pain. Other patients would use the same words to describe the pain but their attitude seemed different. Fear seemed to have gone. The pain was still there, but it was a sensation which could be disregarded rather than a threat which could not be avoided. The mental suffering had gone. In 1943

they first attempted lobotomies to relieve intractable pain due to cancer, neurological tumors, and phantom limb. In most cases there was a striking relief from the unbearable pain, so much so that the narcotics which had been used to carry the patient through his agony could be discontinued.

More recently Scarff [18] found that frontal lobotomy done on only one side of the brain seemed to be equally effective in relieving unbearable pain and the need for narcotics, no matter whether the lobotomy was on the same or opposite side of the body from the origin of the pain, or if the pain originated from both sides of the body.

Since 1940 a variety of psychosurgical approaches have been devised. Temporal and parietal lobotomies were mentioned earlier in this chapter. The openings in the skull through which the lobotomy is done have been made at almost every level. Operating through small holes punched through the thin portion of the skull over the eyeballs is known as supraorbital lobotomy. Actual surgical amputation of the frontal lobes (bilateral frontal lobectomy) has been carried out on a group of mental patients. The major veins draining the surface of the frontal cortex have been tied off with a resultant structural deterioration of the cortical tissue served by the veins. Portions of the frontal lobes have been coagulated by the direct, momentary application of heat. The connecting white fiber tracts which run between the frontal cortex and certain nuclei of the thalamus are severed in the several varieties of psychosurgery. Hence the thalamic nuclei where the tracts originate have been destroyed, either by direct surgical removal or by electrolysis done by sinking electrical needles into the appropriate nuclei through holes in the skull.

The Columbia-Greystone project [8]

In 1946 the following conclusions could have been drawn with respect to psychosurgery. Some mental patients recovered completely following surgery; other patients were greatly improved although not entirely cured; while still other patients were no better, and a few were worse. Since most of the operations were done in either a blind fashion (inserting the leucotome through a small hole) or in a way that did not permit one to be sure as to the exact portion of the brain which was involved in the operation, there was no way of saying with any degree of accuracy whether any particular portion of the frontal lobes was more effective than another in bringing about recoveries. It had been observed that patients showing a press of emotion, agitated depression, or compulsive-obsessive behavior prior to the operation improved more than did patients in whom these

features were not present. Some schizophrenic patients improved or recovered. Manic-depressive, alcoholic and psychopathic personality cases generally did not improve following psychosurgery. It was not thought that any specific psychological function was changed either for the better or the worse by the operation. Intellect as shown by intelligence tests was unchanged. Neither personality tests nor the Rorschach test gave regular results which were representative of the change which took place in the patient. Finally there was debate on how one should judge the degree or quality of social and mental improvement brought about by psychosurgery.

The hope that it might be possible to shed light on many of these questions led to the organization of the Columbia-Greystone project. This project was a collaborative venture of many medical and scientific disciplines. Plans were made to apply the scientific method to patients who were to undergo psychosurgery in an attempt to clarify the outcome of the operation, as well as to further general knowledge concerning the relationship between the brain and psychopathology.

Neuroanatomists planned the surgery in such a fashion that bilaterally symmetrical portions of the frontal lobes would be removed in an open operation where the surface of the brain could be seen. (This new operation has been named frontal topectomy.) The plan of the operations called for removal of tissue in such a fashion that in successive patients there would be different areas with some overlap of portions removed so that if particular areas were responsible for the mental changes the results might be related to the proper area. Medical, physiological, social service, and psychological studies were planned so as to investigate all aspects of the group of mental patients that were to be studied. After the plan had been worked out, forty-eight psychotic patients who had been in a mental hospital for more than two years and who had failed to respond to other forms of therapy were selected for therapeutic study. All these patients were brought to the same hospital ward and all received the same treatment both before and after the operations. After as much relevant information as possible had been collected by various investigators, the forty-eight patients were divided into twenty-four pairs. Each member of each pair was as nearly as possible equivalent to the other. Then the decision as to which of each pair should be operated was made by the medical and surgical specialists on the basis of which of the two was the best "risk" for operation. The unoperated patients constituted a control group for the evaluation of changes which occurred among the patients who underwent topectomy.

After the operations had been completed, the patients were studied for four months at the hospital by the cooperating investigators. At the end of

this period the entire group of forty-eight patients were independently reviewed by hospital psychiatrists who did not know which patients had been operated upon to determine which patients were well enough to be recommended for parole from the hospital. The parole committee recommended that four of the twenty-four unoperated patients be paroled and that twenty of the twenty-four operated patients be paroled.

At this point it was found that for a variety of reasons not all of the patients who were thought to be parolable had suitable homes or places to go if they were to leave the hospital. Hence, only three control patients and fourteen of the operated patients were actually paroled from the hospital. At the end of one year, eight of the fourteen operated patients were out and had never returned to the hospital. Four operated patients had been back to the hospital for various periods of time but were out at the end of the year. Two who had been out were back at the end of the year. The three paroled control patients remained out of the hospital. In the absence of any objective measure of recovery or improvement from psychosis the criterion of improvement on the basis of being out of the hospital was the best available. It was supported by the general observation that most of the paroled patients were markedly changed in that they were free from their former psychotic state. Most of them were working and doing a satisfactory job for their employers.

The changes or social improvement of the operated patients were not found to be related to the age, sex, length of hospitalization, psychiatric diagnosis, or the weight of brain substance removed at operation. There were no regular or significant variations in blood chemistry, in the electroencephalogram, in the neurological findings, or in the physiological measures which could be related to the operation. So long as the motor area was not involved there was no paralysis. If the motor area had been partially involved there was a transient paralysis followed by recovery. Although Broca's area was removed in two patients there was no evidence of any variety of aphasia or speech disability in either case. Several patients had one or more convulsive seizures during the three months following operation, but in only one patient did the seizures persist longer than three months. There was no change in the threshold for pain, vision, audition, or other sensory functions. There were no permanent changes in any motor or reflex functions (other than the convulsive seizures previously noted).

Although more psychological tests and experiments were conducted on these patients than ever before on a similar group of human beings, there were only a few performances which were significantly changed, and most of the changes which did occur were found three weeks after the operation

and usually disappeared by four months after operation. The Wechsler-Bellevue intelligence test, the word association test, time judgment test, mirror drawing, continuous problem task, all learning scores, and most memory scores were unaltered. Most of the Rorschach scores were unchanged. There was no impairment or loss in the categorical attitude, in the ability to perform mental abstractions, or to make generalizations.

There was no evidence that any general factor of mental operation was significantly altered. Intelligence, speed, power, memory, attention, ability to abstract, verbal facility, and imagination, were not significantly decreased or increased. The changes which took place were in rather specific performances which were related with the social recovery.

Most, but not all, patients showed a transient loss of about one year in mental age as determined by the Porteus maze test, which loss was regained at the end of four months by most patients including all those who made a social recovery. The threshold for visual flicker fusion (the critical rate at which flicker is perceived as a steady light) was decreased in nine patients, seven of whom made a social recovery. This decrease in threshold for flicker fusion was shown three weeks after operation, while at four months after operation there was some increase toward the original critical figure.

When all of the psychological test scores were examined to find whether or not the test scores before and after the operation changed more for the patients who had been operated than they did for the control patients, it was found that in 133 out of 135 such comparisons of scores that the operated patients either equalled or exceeded the highest or lowest changes made by any control patient. These changes were converted into a figure which was termed *per cent of change*. These per cent of change figures indicated that there was a tendency for the patients who made a social recovery to have a greater change in test performance than did those whose mental condition was unaltered following operation. These figures were interpreted as indicating that the operations produced generalized effects which differed from patient to patient and as an indication that no specific loss could be attributed to removal of frontal lobe tissue.

There was a marked decrease in the scores on the inventories for anxiety (particularly self-referred anxiety, and self-conscious anxiety) and for mental complaints. There was a smaller decrease in externalized anxiety scores and in the physical complaint scores. These changes in anxiety and complaint scores were closely associated with social improvement. Indeed, these changes are those to which the patients themselves attributed their improvement. In this particular group of patients, almost all in whom those

areas known as Brodmann's numbers 9, 10, and 46 (Figure 34, A) were removed, showed decreases in anxiety and complaint scores together with social improvement. The loss in anxiety and complaints was not interpreted to mean that these emotional components of mental life are dependent on, or localized in, the frontal lobes. This interpretation of the change is based on: (*a*) the fact that there is no known specific localization of affect, or emotion as such, anywhere in the brain; (*b*) direct stimulation of areas 9, 10, 46 does not give rise to any report of emotion; (*c*) after these areas were removed the patients reported no alteration in emotional experience (fear, anger, pleasantness or unpleasantness were experienced as they had been before operation); and (*d*) the relief from anxiety or emotional disturbances was in certain cases temporary, with a subsequent relapse to the psychotic emotional state which was not essentially different from that experienced before the operation.

The psychiatric evaluation of this group of improved patients emphasized the point that, although there was no change in the basic physiological or psychological processes, the attitude of the patient with respect to himself and toward the world about him was altered. Neither pain, fear, anger, nor hunger was changed but the style of response was different. The alteration seemed similar to the change which is shown by the patients recovering from an acute physical illness, during which illness ordinary events are emotionally overwhelming or unbearable. When the illness is gone and health restored, the same events are reacted to in a "normal way."

There is still no adequate explanation as to why psychosurgery brings recovery or improvement in mental illness. But that it does bring about dramatic improvement in some mental patients where all other therapy has failed cannot be doubted.

The neurological basis of consciousness [15]

The difficulties encountered in attempting to translate the psychological facts of consciousness into neurological terms or to give the neurological basis for any psychological function are apparent. We know that certain simple sensory and motor functions are fairly well localized in the brain. However, we know that there is no evidence that psychological functions such as organized speech, imagination, memory, intellect, personality, or emotion are localized in any particular area of the brain.

A loss or disturbance of consciousness may occur when there is damage to certain parts of the brain, particularly the hypothalamus, the upper half of the brain stem, and the cerebral cortex. It is known that there are centers

in the hypothalamus which when directly stimulated lead to sleep. A tumor or a clot of blood in this area produces drowsiness and uncontrollable sleepiness on the part of the patient. This sleep (which seems the same as normal sleep) is very apt to pass into coma and even on to death. In addition to sleep regulation there are in the hypothalamus various control centers for body metabolism and energy including, in all probability, the metabolism of the rest of the brain. It may be concluded that the hypothalamus is but secondarily related to the higher processes of consciousness.

Lesions of the spinal cord up to the upper half of the brain stem produce disturbances of bodily function but not of consciousness. If a lesion occurs in the upper brain stem at or above the middle of the pons an effect of a more general and entirely different kind may appear. The patient becomes drowsy, then unrousable, and passes through deepening coma on to death. Lesions of this sort are thought to interrupt most or all incoming sensory pathways, thereby greatly depressing or abolishing activity of the cerebral cortex and consequently interfering with consciousness. Again the effect is secondary to the maintenance of consciousness.

It seems then that lesions of the brain below the cerebral cortex only secondarily give rise to disturbance of consciousness. Hence, consciousness must depend on the cortex. But the foregoing sections of the chapter have shown that any part of the cortex may be damaged or removed without loss or measurable decrease in consciousness. In cases of massive brain tumor either the right or left hemisphere of the brain has been removed without resultant defect in consciousness. Consciousness appears to be a global affair not markedly disturbed or diminished until more than half of the cerebral cortex is removed.

There are a few conditions—it is remarkable how few there are—in which "sectional" disturbances of consciousness can be demonstrated. Phantom limb and causalgia (Chapter 24) are such states. Sudden, total deafness (Chapter 5) with the attendant experience of a "dead" world is another. In brain lesions of the cortical areas immediately adjacent to the visual cortex the patient can see objects but cannot relate them spatially to each other. Such a patient cannot count objects by looking at them but can by feeling them. This peculiarity also occurs in some cases of Pick's disease.

Normally we have a mental image of our own body—the body image. This image is only approximate and is at times vague. We usually are unconscious of our feet and legs while walking, but can call the imagery to mind—become conscious of it—if occasion arises. Under certain conditions this body image may be grossly disturbed or even depart from conscious

reality. For example, following brain hemorrhage one patient told the doctor there was no room for "him" (some other person) in bed between his own body and the wall. He was quite rational but maintained that there was somebody in bed with him, and pointed to the left side of his own body as the other person. When asked how long this "he" had been there, he replied, "All the time—he moves about." When touched on the left thigh he said he had been touched on the right thigh. He did not realize that he could not move his left arm and leg. When asked to move his left arm, he moved the right. In brief, one side of the body was not now part of the conscious body image or of self-consciousness.

The changes in conscious life following psychosurgery may be thought of in the same way. There occurs a loss in the "mental component" or consciousness of unbearable pain, without loss of pain sensitivity; a loss in psychotic anxiety without loss in the ordinary experience of fear. Some observers have maintained that psychosurgery leaves the person shallow and superficial, without depth of emotional and intellectual life. However, this type of change is one which thus far has defied measurement.

Sectional disturbances of consciousness may be related to the loss or impairment of some incoming sensory component of experience which abolishes the awareness of part of the bodily self or its environment. With each sectional disturbance of consciousness there is an associated localized disturbance of cortical activity. The postural sensory systems are of special importance for the maintenance of consciousness. In the same way it is conceivable that pain (unconscious?) maintains the psychotic or neurotic anxiety which is relieved by psychosurgery.

There is, as the foregoing indicates, not too much specific information available as to exact relationships which may exist between consciousness in general and any particular portion of the brain. It has been fairly common for psychologists to assume that behavior, at least in its more simple forms, is a matter of reflexes. Usually this has been further simplified to the stimulus-response formula, in which behavior is described in terms of the stimulus and the response, with a good deal of speculation interposed as to the way in which the brain forms the connections and the integrations necessary between stimulus and response. That this speculation is a gross oversimplification was shown by Lashley,[14] who experimentally demonstrated the inadequacy of both the chain-reflex and the stimulus-response formulae as explanations of consciousness.

The facts of psychopathology and of brain function remain. The relationship between these two orders of events affords ground for endless speculation. Head once wrote, "Round and round like a stage army moves

the procession; the clinical appearances are identical, but each fresh group of observers views them with new eyes and with different preconceptions." [7]

Summary

Behavior and mental life depend on the orderly functioning of the entire central nervous system. Without a brain there is no adaptive existence; and the more complete the organization of the nervous system, the more adaptive is the life of the organism. Injury or destruction of brain tissue may lead to psychological changes, either in an actual loss or in a release of functions which are less adaptive. The evolutionary development of the nervous system shows throughout a one-to-one relationship between the complexity of the nervous system and the potentialities of adjustive behavior.

It has been experimentally demonstrated that visual stimulation is represented in the occipital lobes, and that cutaneous and kinesthetic sensation are primary localized in the primary sensory area. Direct stimulation of the primary motor area gives rise to simple motor responses. Beyond these observations there are but very few facts relating to cerebral localization. The cutting of the nerve tracts connecting the frontal lobes and the hypothalamus results in a relief of psychic and intractable pain and a diminution of self-consciousness. Stimulation of the parietal lobe may produce hallucinations. Bilateral removal of the temporal lobes in monkeys causes a profound change in the "personality" of the animal. Removal of occipital lobe tissue is usually followed by partial to complete blinding, depending on the amount of tissue removed. Further than this the exact relationship between brain anatomy, neural function, and psychological phenomena is speculative. However, these relationships are no more speculative than are the "psychodynamics" which are used to "explain" psychopathology.

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SECTION FOUR

PSYCHOPATHOLOGY

Chapter 24 *Disorders of Sensation, Perception, and Action*

IN THE PRECEDING CHAPTERS, PICTURES OF DIFFERENT SORTS OF abnormal behavior and experience have been given, followed by a discussion of the basic explanatory concepts which guide present-day thinking in abnormal psychology. It is plain that only rarely do isolated symptoms appear. Almost always each item in any disorder (physical or mental) exists along with other symptoms in a complicated relationship to other structures and functions which themselves may be either orderly or disordered. Since it is impossible to hold in mind all of the interrelationships at one time, we customarily break down the complex pictures; we oversimplify things; we try to group together in our thinking those features which seem to belong together, and so present a generalization which has some value in holding diverse facts in mind.

In Chapters 24–29 which follow, the disorders of behavior and mental life will be grouped and examined in light of the conventional divisions of the field of psychology; namely, perception, memory, emotion, volition, and intellect. It will be apparent that these conventional divisions often are not too appropriate for describing the phenomena of abnormal psychology. Even so, it is best to follow this system of presentation for two reasons: (*a*) it brings the material in line with normal psychology, and (*b*) most of the psychological experiments have been conducted and reported in these terms. Until such time as a more adequate system of classification of psychological phenomena is formulated, and until the facts now arranged in the older classifications are translated into some new system, the conventional system, admittedly unsatisfactory, still seems preferable.

The three most obvious ways in which we recognize abnormality in another person are: (*a*) he does not seem to see, hear, or feel things the

way most of us do; (*b*) his behavior is different from that of the usual person; and (*c*) his speech (the way he expresses himself) is different from that which we would expect from one of his age and education. We will take up a wide variety of psychopathological processes without particular reference to the disorder or disease in which they occur. It must be remembered that these disorders of relatively simple functions rarely, if ever, occur alone. They usually are parts of a complex whole which can be more easily understood if one has a good working knowledge of its components.

* * *

Sensation and perception

By *sensation* is meant that form of experience, aroused from outside the nervous system, which cannot be further analyzed by introspection, that is, sensation is an element of consciousness. *Perception* is the awareness of external objects on the basis of sensation; the integration of sensory experience with previously acquired knowledge. The description of disorders of sensation and perception simplifies some of the phenomena of psychopathology. In some instances this simplification adds to clarification, in others it fails to do so.

Among the disorders of cutaneous sensation are those which have a direct organic basis; those which are indirectly organic; and those for which no organic basis has been found. An example of the first variety is the loss of skin sensitivity after the sensory nerve serving the area has been cut; of the second variety, an experience of pain in the fingers after the lower arm has been amputated; and of the third variety, the "glove anesthesia" in hysteria, where the loss of sensation in the hand does not correspond to any defined sensory nerve distribution.

An interesting variety of *paresthesia* (false or distorted sensation) may follow brain injury, sensory nerve injury, or limb amputation.[8] Occasionally, after nerve injury due to a bullet wound or the crushing of tissue, the patients suffer from a type of pain which they describe as "burning," "mustard red-hot," or as a "red-hot file rasping the skin." Such pain is termed *causalgia* and is usually related to the hand, arm, foot, or leg. It follows injury to a nerve trunk in the upper arm or leg, and is somewhat comparable to the tingling sensation of the fingers following a blow on the elbow. The skin of the affected part often becomes mottled and glossy. The temperature of the painful area may be several degrees lower or higher than that of the corresponding area of the opposite limb. The pain is so continu-

ous and intense that the patient is unable to sleep without sedatives, can eat but little, and cannot bear the slightest manipulation of the affected limb. Medical examination usually shows that the injured nerve trunk has not regenerated properly, probably due to formation of scar tissue.

Following the amputation of a limb, many patients will complain of sensory experiences which seem to come from the missing member. This phenomenon is termed "phantom limb." The experience varies from simple feelings of touch to intense pain. One individual said it felt as though his fingers were clenched over his thumb, his wrist was flexed, and the fist pressed toward the shoulder and held there; another said that it felt as though a wire which ran down the center of the missing arm was attached to the fingers and was pulling the fingers up through the arm. In one group [3] of 404 amputees, phantom sensation was reported by practically every individual. Spontaneous complaints of pain were rather rare, occurring usually in those individuals who had other psychopathological complications in addition to the amputation. Other studies have shown that phantom sensation and pain are not invariable associates of adjustment difficulties. Indeed, when the phantom symptoms were relieved the so-called psychopathological complaints usually disappeared.

Causalgia and phantom limb are closely allied to the phenomenon of intractable pain. Some patients suffering from cancer, tumors, or injuries to the spinal cord or to the brain endure an experience of pain which is fairly well-marked and distinct. Such a patient may say that the pain starts in the small of the back, shoots down the right leg, and ends with a painful cramp of the foot. Generally speaking these patients complain of a definite pattern of pain which they distinguish from any other pain they may have, such as a headache or intestinal cramp. Wide varieties of both surgical and medical methods have been tried in an attempt to alleviate the suffering. Freeing the sensory nerves from scar tissue, injection of novocain along the nerve, cutting the peripheral sensory nerves, removing the sensory area of the brain, drug sedation, physical therapy, hypnosis, psychoanalysis, and psychosurgery, all have been reported to bring relief from causalgia and intractable pain. In light of these findings it now seems that physical pain of the variety experienced in intractable pain, causalgia, or phantom limb is closely allied to the experience of morbid anxiety which is the central complaint in many neurotic and psychotic patients. The final explanation is not yet available but the line of evidence is very interesting.

Disorders in the sensations of hunger occur quite frequently in psychiatric patients. Diminution or absence of hunger or appetite (*anorexia nervosa*) is a fairly common occurrence in the depressed or hysterical

patient. Neurotic and depressed patients complain that food no longer has any taste, while the schizophrenic insists that he tastes poison in his food. Such disorders in taste and in hunger furnish a basis for a distaste for food, even when the patient is obviously starving and in need of a substantial diet. This anorexia may be so acute that even tube feeding results in nausea. Frequently the loss of appetite is a leading symptom at the onset and during the continuation of the mental illness. Recovery in such patients, whether spontaneous or brought about by therapy, is attended with a recovery of appetite and a gain in body weight.

In contrast to anorexia some mental patients have abnormally intense hunger sensations (*bulimia*). This symptom occurs in paresis, epilepsy, and in certain forms of feeble-mindedness. Such individuals eat enormous quantities of food and complain that they are always hungry. Craving for unusual foods (*parorexia*) is found in vitamin deficiencies, particularly in those associated with alcoholism and pellagra.

Imperception is a condition in which stimulation and sensation fail to arouse their usually associated images, ideas, or responses, so that experience has little or no meaning. It produces a strange feeling of vagueness and uncertainty described as clouded consciousness. For example, patients who suffer from word-blindness say that the printed characters on the page have lost their meaning, although they may be seen clearly enough and even spelled out. Other patients report that objects seem to have lost their visual meanings (object-blindness), so that they are not recognized unless they are carefully handled or otherwise studied. Still other patients complain that they have been deprived of the ability to perceive depth or the third dimension, so that the world seems flat to them. In psychic deafness sounds lose their meanings. This disorder may manifest itself either as specific word-deafness, where spoken words become sounds without meaning, or as the inability to apprehend melodies. Another form of imperception is astereognosis, the loss of the ability to recognize objects by cutaneous or kinesthetic sensation, that is, by feeling them.

Sensory imperception is also called *agnosia*, while the specific loss is spoken of as visual agnosia, verbal agnosia, kinesthetic agnosia, and so on. Patients who have these defects usually show them in a complicated way. For example, one such patient [13] was able to write but unable to read what he himself had written. He could not identify directions or give the major landmarks in the vicinity of his own dwelling. In another patient,[1] aged twenty-two, who survived the Cocoanut Grove fire (see Chapter 8) there was an inability to perceive the whole of any visual situation. Only parts were perceived and their correct relation was not recognized. She was unable

to read, to copy letters or geometric figures, and to recognize pictures or objects on short exposure. She reported that visual impressions superimposed themselves on subsequent ones so that proper perception and recognition were interfered with. Some reeducation was possible in this patient. The various forms of agnosia are usually related to organic brain damage.

Imperception may arise in several different fashions. For example, if an individual is distracted by great pain or anxiety, there will be an interference with attention. This interference will deprive the primary sensations of their usual associated meanings and ideas, so resulting in imperception. If there is progressive brain damage, or a toxic condition which is interfering with brain functioning, then the usual connections between ideas, memories, and sensations are somehow interrupted and imperception may result. The same effect may take place in a splitting or fragmentation of consciousness when the usual ideas and memories do not become associated with sensation. Similarly, a patient will experience imperception when he is occupied with his own compulsions or hallucinations, and hence inattentive.

Some persons have the tendency to experience visual color whenever they hear certain sounds or certain melodies. This arousing of a sensory experience in a modality which is different from that of the primary stimulus is termed *synesthesia*.[4] Colored hearing, colored taste, musical pressures, and tonal temperatures have been reported. Investigation of this experience in the same individuals over widely spaced periods of time has shown that the synesthetic association remains practically constant. A great deal of experimental work has been done with persons who report synesthetic experience, but its real basis is still unknown. It has been variously attributed to some pathological condition, to a physiological anomaly in which the wrong nerve structures or patterns have become connected, or to a conditioned response type of learning.

The changes in sensory threshold for all varieties of sensory stimulation in neuropsychiatric patients have been the subject of extensive investigations. In both neurotics and psychotics a wide variation in threshold determinations has been reported for visual, auditory, pain, and temperature sensation. Some patients are extremely sensitive and others are practically anesthetic. The deviations are due to a variety of circumstances: differences in suggestibility, differences in level of anxiety, variation in attention (imperception) and cooperation, variation in physical state, lack of precision in the measuring instruments or in the control of the experiment, and so on. Wide differences in sensory thresholds have been found and wider differences in explanation have been offered. Probably only relative constancy of sensory

threshold exists for any individual and none for any particular diagnostic group.

Some schizophrenic patients tend to be more fixed or rigid than normal persons in their perceiving of almost any kind of material which is presented to them. When asked to sort out blocks of different shape and color, they are sometimes unable to sort for shape after they have sorted for color or vice versa. Mental completion of incompletely drawn pictures is difficult for them. Many psychotics seem to require a greater amount of sensory material before the sensation actually becomes a perception, or to change from one perception to another.

Organic brain damage is frequently associated with a variety of disturbances in pattern perception. Sometimes a patient is able to read only when he follows the outline of the letters with his finger. Other patients cannot perceive words or letters which are momentarily exposed to them, although they are clearly perceptible to normal individuals. Slowness in pattern perception is also a common symptom in cases of cerebral injury. There is no systematic way in which the differences in sensation and perception are related to the different kinds of psychosis, neurosis, or diffuse organic brain injury, although many patients show a decrease or an increase in acuity, a rigidity of organization, and a slowness of pattern perception. It is often assumed that certain of the disorders in pattern perception or organization shown by psychotic or neurotic patients constitute evidence of organic brain damage. Actual proof of this assumption is lacking, while the variability in perception in the same patients from time to time argues against the assumption that such a disorganization is a valid criterion of organic brain damage.

Illusion

By *illusion* is meant the inexact or inaccurate perception of some actual object or situation. A passive illusion is a normal phenomenon and may be experienced by everyone. Such illusions are determined by the nature of our sense organs and by the environment about us. An example is the apparent convergence of parallel lines at the horizon. Active illusions are due to a conscious expectation based on habit, suggestion, attitude, or unconscious motivation. The mirage of a boat seen by shipwrecked sailors, the report of good health by the advanced paretic, a patient calling the nurse by his mother's name, all are instances of active illusions. It is often difficult to differentiate between this type of illusion and hallucination.

An example [14] of an active illusory experience in certain chronic

paranoid patients is as follows. The patient fails to recognize the identity of a familiar person and instead believes him to be a "double" as though he were dealing with an identical twin of the familiar person. For example, a daughter refused to recognize her father, calling him an impostor while insisting that she really loved her father and hated the impostor. Another patient questioned his wife because he felt she was a "double" and then said, "I cannot believe it is you, and yet, you can answer all my questions."

In general, active illusions occur in many cases of physical or mental illness, particularly when the patients are delirious or disoriented. It is as if the primary sensations had lost part of their meaning (imperception) and were given a new sort of meaning emotionally related to the general mental trend of the moment.

Hallucination

While an illusion is a false interpretation of actual sensory stimulation, hallucination is a perceptual experience without any known external stimulation. Hallucinations may occur in any single sense field or in several sense fields at the same time. One may have an hallucination of an angel and the angel may be seen, heard, and felt to touch one during the experience. Hallucinations are generally, although not invariably, related to abnormal conditions. They may be experienced by otherwise normal individuals during periods of great fatigue, or intense emotional excitement, or due to the effect of drugs, alcohol, drowsiness, or the like. In the normal person such hallucinatory experiences are always transient and are understood by the person who has experienced them as unusual and unreal, once the phenomenon has ceased.

Hallucinations are usually classified according to the sense modality in which they occur. Auditory hallucinations are the most frequent variety. The patient hears noises, tones, voices, meaningless words, meaningful words, sentences, or messages which seem to originate within his head, within his body, outside himself but near to him, or at a distance from him. He may hear "attack and defense" voices which alternately accuse and defend him. He may experience a "soundless voice" or "thoughts-out-loud." He may complain of "double thought," during which he hears his own thoughts spoken aloud by another voice. These experiences may occur at regular or irregular intervals, or they may go on continuously over long periods of time. Some schizophrenic patients report that their hearing of voices has been practically continuous over a period of years.

Visual hallucinations may be stationary, moving, variable, transient,

large, small, colored, achromatic, and of any form or description. The patient may see angels, the Devil, insects, a printed page, snakes, or animals.

Hallucinations of taste and smell frequently occur together and are almost always disagreeable. For example, the patient will complain that his food tastes and smells of arsenic, of poisoned gas, or filth. Hallucinations of pain are described as pinpricks, stabs, electric shocks; or the patient may make up a word to describe these pain experiences.

The patient may insist that he has been, or is, moving about the room or building. He may say that he is floating in space over his bed. He may ascribe this movement to angels or devils that are supporting him or chasing him through space. Another schizophrenic patient whose left arm had been amputated reported that his missing hand wrote incomprehensible material in the form of mirror writing.

Verbal hallucinations which involve the speech mechanism may also occur. If they are weak, the patient may think he is speaking when he is not, and mutism may result. If they are intense, the patient may actually speak involuntarily—"the escape of thought."

The experience of hallucination is, of course, personal and subjective, but it has in most instances a profound influence on all other mental functions. Hallucinations cannot be resisted. No effort of will on the part of the patient can control or halt the experience. They *compel* attention. Sometimes the patient may recognize the unreality of the hallucination; at other times he will be unable to differentiate between external reality and his hallucinatory experience. Since the experience does compel attention and cannot be controlled, it is often mistaken for true perception, and the individual will maintain its reality against all other testimony and evidence. The hallucinations are usually disagreeable or indifferent, although, on occasion, they may be agreeable. Since they are believed and since they have emotional tone, they are bound to influence the behavior of the person. Often the voices will be immediately obeyed. Strange and bizarre acts may be carried out at the instruction of these voices. Also, a patient may remain mute because he hears his own thoughts spoken and he can only wonder at the deafness or stupidity of those about him who do not hear his remarks.

Lang,[6, 7] himself a schizophrenic patient for more than eight years, has written a subjective description of hallucinations as he experienced them. His first hallucinatory experience consisted of hearing a voice speaking in a soothing monotone from a point slightly above his ear. It uttered only a sentence or two at a time and claimed to originate from God. Another type of auditory hallucination described by Lang was one which seemed to arise from actual human beings. For example, on one occasion he was playing

bridge. He heard his partner bid three clubs, so he made a bid in another suit since he had only a weak hand in clubs himself. He secured the bid, but when his partner's hand was laid down he noticed that his partner had only two small clubs in his hand. He asked his partner why he had made such a bid. His partner denied bidding, and the other two men at the table supported him. Actually, he had declared an entirely different bid at the time Lang heard him bidding three clubs. Hence, there was the blocking of a real stimulation and the substitution of an hallucinatory one. Hallucinations of this variety could not be distinguished from the actual speech of the person who seemed to be talking. Only subsequently could Lang check to find out what had really happened. Such checks were of little value to him, for the hallucination was the actual experience so far as he was concerned.

Lang's visual hallucinations were sometimes simple and sometimes complicated moving forms. In the simple forms there were flashes of light, the appearance of the picture of some individual projected on the wall, and so on. Usually his visual hallucinations were combined with auditory experiences. On one occasion he was walking down the street near the end of a streetcar line. He saw, about half a block ahead of him, a streetcar heading toward the end of the line. The car had every appearance of an actual car. It was tridimensional, opaque except for the windows, and it had passengers and a crew. He distinctly heard the rumble of the car wheels. When he reached the end of the street and the end of the streetcar line where the car should have been standing, there was no car and actually no car had passed. On another occasion he had a very unusual kinesthetic hallucination. He had walked to the end of the dock with the idea of attempting suicide by drowning. He poised on the edge of the pier, then tensed and jumped off, feeling himself falling through the air. As he fell, he looked to see how close he was getting to the water and found that he had actually never jumped and was still standing solidly on the pier.

Lang pointed out that the hallucinations constituted aspects of conscious experience which were real to him. They appeared as organized experience. His conscious self did not anticipate them or initiate them. He, himself, had nothing more to do with the voices than he had to do with a conversation which he might have overheard. The hallucinations appeared spontaneously. They did not grow out of his conscious fantasy; they often did not even correlate in any way with the configuration of the conscious field which existed at the time they occurred. He was unable to produce stimulations or experiences similar to those presented by the hallucinations. Lang tried to do this on numerous occasions but never succeeded in producing hallucinations voluntarily.

Part of the peculiarity of the behavior and mental outlook of the psychotic patient can be understood if one considers the compelling nature of hallucinatory experience. When hallucinations continue over a period of time, the patient is apt to form delusional systems. He will believe himself to be the Son of God, a sinner sentenced to everlasting hell, a prophet, or a famous figure in history, in an attempt to rationalize these strange experiences. The influence of hallucination upon the mental life of an individual is so unique that it should never be underestimated.

Since hallucinations exert such an important and potent force in abnormal behavior, it is not surprising to find a great deal of both experiment and theory concerning their nature. Of particular interest are Penfield's [11] observations made during brain operations. When he stimulated directly the surface of the parietal lobe of the brain, certain patients reported organized hallucinatory experiences. Upon stimulation, one patient said, "I don't feel normal. I don't know whether it is one of my dreams or not. A familiar sight danced into my mind and away again. Three or four things danced before my memory. They went too fast. I can't quite remember who they were. I think I saw the same scene before." Another patient, on stimulation, said, "I hear people coming in. I hear music now, a funny little piece." The music was identified by the patient as something similar to the theme song of a children's program which she had heard on the radio.

Just how hallucinations can arise and whether or not they have symbolic significance have been points of speculation for a long time. Speculation as to their origin can be boiled down to either of two assumptions. (*a*) Hallucinations are due to the effect of some agent (toxin, drug, injury, or nutritional defect) whose action produces unusual activity of the brain which is the basis of the experience, or (*b*) they are exaggerations of normal mental processes which somehow get out of control.

The first assumption has been subjected to extensive experimental investigations with drugs, especially mescal and hasheesh. In mescal hallucinations, Klüver [5] found three consistent tendencies: (*a*) certain constant forms, of which lattices, spirals, fretwork, and arabesques seemed to be outstanding; (*b*) alterations in the number, size, and shape of the figures seen; and (*c*) changes in the spatial and temporal relations of the material. For example, one subject who had taken mescal stated that he saw a fretwork before his eyes; that his arms, hands, and fingers turned into fretwork; that he became identical with the fretwork. Every object in the room and the walls changed into fretwork, becoming identical with him. All ideas changed into glass fretwork which he saw, thought, felt, tasted, and smelled.

On the basis of such experimental evidence, Klüver concluded that hallucinations produced in mescal intoxication are very close, and possibly identical in form and content to the hallucinations of schizophrenics. Other psychotic features of the mescal state resemble those seen in the schizophrenic syndrome. The biochemical processes involved are not understood, but the similarity in the total picture of the two conditions is most striking.

The second line of speculation which assumes that hallucinations are exaggerations of normal processes has been investigated by several experimenters, among them Roman and Landis.[12] Patients who had experienced periods of hallucination and who were intelligent enough and clear enough mentally to consider the topic were questioned about their auditory, visual, and gustatory imagery and their hallucinatory experience. The reports of the patients indicated that there was no quantitative or qualitative relationship between their ordinary experience of imagery or ideation and that of hallucination. All patients agreed that imagery and hallucinations were quite different processes; hallucinations being far more real and unpleasant.

Equally significant with the origin is the question of content of hallucinations, concerning which there has been much discussion. The similarity of hallucinations to dreams is obvious. We all tend to be moved by events which occur in our dreams. We often awake to find that we have been crying, laughing, or sweating. Since the dream phenomena occurred during sleep, they are usually considered unreal; only under exceptional circumstances do they modify our everyday existence. But hallucinations are much more than vivid daydreams. A daydream can be stopped or started, its dreamlike quality is comprehended as such, so that the dreamer, not the dream is the master. Many dreams have a symbolic quality; they are the living out in imagery of the repressed or unconscious wishes of the dreamer. It is not uncommon for psychopathologists to attempt to find the same sort of symbolism in hallucinations. For example, the previously described experience of the missing hand which wrote incomprehensibly in mirror-writing might be interpreted as a symbolic attempt to conceal lost desires. The writing was done with a lost hand and in a fashion that could not be comprehended. In another instance, if a childless woman has an hallucination of many babies, such an hallucinatory experience could be interpreted as a projection of her emotional wishes. But when the same woman first sees a single pencil or a chair, and then suddenly sees a row of pencils or a row of chairs, it would not seem likely that repressed emotional factors were responsible for the multiplicity. Any object, event, or idea may have emotional significance. A patient with a crippled arm saw in his hallucinations persons around him who were also crippled, while a blind patient saw heads

with empty eye sockets. That a particular object should appear, in hallucination, connected with some emotional need, seems no more significant than the fact that our perception of actual objects may be modified in meaning by the conditions under which we see these objects. Drug experiments have shown that the mescal hallucinations which appear when a person is awake and the mescal dreams which occur when he is asleep are very similar as to form, content, and spatial and temporal relationships.

Most modern investigators believe that hallucination is a centrally initiated process which depends on some organic brain process. The content of hallucinatory experience is sometimes quite obviously of symbolic nature, sometimes takes a stretch of the imagination to produce any plausible connection, and sometimes is completely devoid of symbolic context.

Reflex action

It is customary to think of motor behavior as built up of more or less simple reflex response units. A simple reflex has been defined as the response of a single effector unit to the stimulation of a single receptor unit when these are linked together in a simple reflex arc. This concept is a convenient abstraction but, in all probability, a single reflex arc never functions alone.

Physiologists and neurologists have found through practical experience that certain of the simple reflexes are indicative of disturbances of more complicated functions. Such reflex disorders are exemplified in the disturbances of the pupillary, patellar, or the Babinski reflexes. Ordinarily, the size of the pupil of the eye changes when one looks from near objects to far objects and vice versa, or when the illumination falling upon the retina is increased or decreased. In some types of brain injury or brain infection it is found that the size of the pupil alters for distance accommodation but not for changes in illumination. In other types of cortical lesion the size of the pupils will change in response to altered illumination, but will not respond to distance accommodation.

The patellar reflex (knee jerk) is elicited by a sharp tap just below the kneecap, causing the lower leg and foot to kick forward vigorously. Absence of this response is sometimes an indicator of damage to the lower part of the spinal cord, such as one finds in various forms of paralysis, meningitis, or certain toxic conditions. The Babinski response is brought out by drawing a finger rapidly across the sole of the foot from the heel to the great toe. Ordinarily, this stimulation is followed by a contraction of all of the toes. If a lesion exists in the motor centers or pathways from the brain down

through the spinal cord, there will be an extension, rather than a contraction, of the great toe and a flaring of the other toes.

Motor disorders

Motor disorders may show themselves as absence of response, decrease in response, exaggeration of response, or disorder of response. The various forms of paralysis are examples of absence of motor response. True paralysis is due to some interference with the motor nerves, nerve tracts, or nerve centers with resultant loss of function, just as a telephone ceases to function when the wires are cut. "Functional" paralysis occurs in hysteria, where the patient loses the use of a limb with no damage to either the nerves or the muscles. The "miraculous" cures which are seen at religious revivals or shrines, or as the result of hypnosis or some newly invented form of therapy are usually cases that are to be classified as hysterical paralyses.

Decreased motor responsiveness is exemplified by the functional muscular weakness of the neurotic, the retardation of the depressed patient, or by the posttraumatic disability of the compensation case who has suffered some industrial accident.

Apraxia

Apraxia is the loss of ability to perform some skilled act in the absence of either motor paralysis or sensory anesthesia. In motor apraxia the person knows what is to be done but cannot accomplish it, despite voluntary attempts to do so. This disorder is found to be associated with certain lesions of the brain, by which the normal course of the nerve impulses is either totally or partially blocked. Such a patient, when asked to touch his nose, may grasp his ear; or, when asked to thread a needle, will make clumsy and helpless movements with his hands.

In sensory or ideational apraxia the patient does not know what is to be done because the sensory cues to action are missing. When lighting a cigar, he may put both the cigar and the match in his mouth; or when he attempts to dress himself, he puts his arms into the legs of his underwear and cannot proceed further; or, if requested to get up from his chair and walk about the room, he merely looks puzzled. He seems unable to comprehend the meaning of such requests, although he may be capable of repeating the order and even of explaining it. However, he cannot make the connection between his explanation and the actual performance of the act.

Tics

Quick, sudden spasms, similar in form to involuntary movements, and without known organic basis, are spoken of as *tics*. They consist of a sudden, rapid, spasmodic twitching in a coordinated fashion of some part of the face, a movement of the head and shoulders, or sometimes the arms.



Fig. 35. Facial tic.

Any or all of these parts of the body may be included in the pattern. Regardless of whether or not such a tic occurs on a compulsive or organic basis, it is characterized by the fact that the individual is unable to inhibit it. Some tics are preceded by a strong desire to carry out the particular grimace or twitch, and its performance is said to lead to a feeling of relief.

Usually tics develop after age seven in children who have been active, impulsive, and somewhat uncoordinated in muscular development. They occur about twice as frequently in boys as in girls and more frequently in bright than in stupid children. A ten-year-old boy described his experience with his tics saying, "Gee, this tic is very uncomfortable—the sounds I like to make. The teacher and other people mind the noises, but the eye tic is very uncomfortable to me. . . . It feels better when I do it." [10]

Tics are considered to be a form of motor neurosis, occurring in the "constitutionally predisposed" when there is an enforced restriction of freedom of movement together with overstimulation. In one sense it symbolizes the inner experience of being overwhelmed by an impulse which originally led to some peak of excitement, together with the defense against that excitement; carrying the analogy further, a tic may be a masturbation equivalent.[9]

Disorders of writing

A great deal of attention has been given to the analysis of the handwriting of mentally abnormal persons. The change in writing which accompanies any psychotic or deterioration process is usually marked and, to some extent, characteristic of the disorder. With advancing age the writing becomes quavering, small, and formal. The writing of the paretic sprawls, is full of misspellings, and is quite irregular. The manic patient writes in a sweeping, flourishing manner, while the same person in a depression will write in a small, compressed, limited style. The writing of the schizophrenic is a mixture of writing, printing, pictures, and symbols which seem to have little connection and meaning. In fact, it often resembles the scribbling of a small child.

A peculiar disturbance of writing which is found in some children, and which may continue into their adult life, is mirror writing. It consists in the tendency to write either from right to left, or both right to left and upside down. The cause and explanation for either type are not clear, but it is assumed that some disturbance of space perception is involved.

Catalepsy and catatonia

In catalepsy there is a total suspension of sensation and voluntary motion. The muscles are rigid, the pulse and respiration are slow, the body is cold and pale, and the person appears unconscious. Such a condition may last from a few minutes to several days, and is seen especially in certain organic brain lesions or infections. It was at one time considered to be a common symptom in hysteria.

Catatonia and the catatonic state give the name to one of the forms of dementia praecox. The catatonic patient may assume either of two response patterns, rigidity or waxy flexibility. In the rigid, negativistic form, the patient holds himself in a fixed, stiff position for hours or days on end. His jaws may be so tightly clamped together that it is necessary to feed him by

means of a tube passed through the nose. He usually is mute and does not respond to strong or even painful stimulation. If an arm or leg is forcibly held in some new position, it will spring back to the original position the instant the force is relieved. In the waxy flexibility state the patient sits or reclines in an immobile fashion, but his position can easily be changed or molded by the observer. After such a change, the patient will maintain the new position as though he were actually made of wax. All the time, he appears to be so wrapped up by his own thoughts that he cannot be bothered by anything that goes on around him or is done to him. However, when he goes to sleep the catatonic responses disappear and his posture and changes of posture during sleep are similar to those found in the normal individual.

Following recovery from such a catatonic attack, many patients report that they were overwhelmed or "smothered" by ideas and hallucinations which entirely occupied their conscious attention. They may remember some things which occurred, but only in a fragmentary fashion. They usually know that they were unable to speak or unwilling to speak because of this intense preoccupation.

The drug bulbocapnine produces states in animals quite similar to catatonia or catalepsy in humans. The actions of this drug and others similar to it have been studied in detail by De Jong.[2] He demonstrated that the physiological basis for the catatonic state was a partial "cellular asphyxiation in the central nervous system." He further determined that the action of the drug produced an alteration in the function of the liver and intestine which in turn produced substances which interfered with the oxidation rate in the central nervous system. This conclusion is in remarkable agreement with that of Kraepelin who held in the late 1890's that dementia praecox was toxic in origin and that the toxins came from the digestive system.

Summary

Although sensation, perception, and motor response are the simplest terms to which one may reduce psychological experience, even this simplicity fails in many aspects of psychopathology to bring about an adequate explanation. In some instances a better understanding of abnormality is gained from a study of the way in which these simple processes modify behavior. It is still a debatable point, however, whether the simple processes themselves are disordered or whether they are representative of a disorder extending throughout the entire organism. In general, the importance of the

disorders of sensation and perception in the behavior and mental life of the abnormal individual is well established and accepted as a basic reference point. Disordered motor responses may be either organic or functional in nature, but they usually are symptoms rather than causes of psychopathology.

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SECTION FOUR
PSYCHOPATHOLOGY

Chapter 25 *Disordered Emotion: Description*

IT WILL BE RECALLED THAT THE DISTINCTION BETWEEN NORMAL AND abnormal is one between *behavior which is usual* or easily comprehended and *behavior which is unusual* or strange. This distinction presents certain difficulties when one considers the disorders of emotion. There is a tendency to call any or all varieties of strong emotion "abnormal," and to regard them as unusual or incomprehensible. This has come from the common literary usage of the word "emotion," which implies that it is unusual. Everyone knows that feeling and emotional expressions form part of everyday life and that most emotions and feelings are normal, while but few are unusual. In attempting to differentiate between feelings and expressions which are normal and those which are abnormal, it is possible to set up certain criteria. These criteria are not necessarily discrete or all-inclusive; they overlap each other and do not always apply to the same particular experience or behavior.

1. Usualness or predictability. If the feeling or expression is that which is usual in a situation or for an individual, or if it is the kind of a reaction which we would predict in advance, we call it "normal"; otherwise, "abnormal."

2. Relevance or appropriateness. If the feeling or expression is relevant and appropriate and of the same variety which is shown by most individuals of the same cultural and social group, we call it "normal"; otherwise, "abnormal."

3. Personal reference. If the feeling or expression is that which either the observer or the patient considers appropriate because of the personal relationship between the patient and some other person, it is called "normal"; if not, "abnormal."

4. Duration. Most emotional reactions are governed in their duration

by the intensity and vividness of the experience. If, after a very serious accident, the participant very quickly and completely recovers from his emotional shock, it is unusual. If, after a death in the family, the bereaved mourns deeply for a period of years, the emotional reaction is called abnormal. In either instance the emotional reaction deviated in duration from the length of time during which most individuals experience emotion after some appropriate stimulus.

5. Possible injury to self or others. If the intensity of the emotional expression is such that the individual may injure himself or others, we consider it abnormal, even though the stimulation may have been most provocative. The concept of emotion so strong that it cannot be controlled is recognized and accepted in the law. For example, after some very provocative incident, one person may kill or injure another and then plead temporary insanity as a legal defense.

In general psychology much experimentation and discussion have been devoted to the problems of how emotions or emotional reactions may be recognized; how they may be measured; and how they may be compared. There are always two aspects to emotional reactions: first, the expression or behavior which any observer may see; and second, the personal feeling which only the experiencing person knows and can communicate to others, usually by descriptive words. Some, but not much correlation has been found between personal feeling and the outward expression of emotion as judged by observers. This has been true in studies of normal individuals and, as we shall see later, is even more true in studies of the abnormal. This low correlation between expression and feeling complicates both the description and experimental approach to the problem of emotional abnormalities.

Some persons conceal much of the expression of their feelings, while others, hoping to deceive the observer, give vent to an exaggerated display of emotional reactions with but little appropriate feeling. There are wide differences in the meanings and usages of the descriptive adjectives and nouns which are used to express feelings and experiences. There is a continually developing, new terminology which shifts quite rapidly. It is in the form of slang and colloquial expressions which are used for a month or a year and then are no longer regarded as appropriate or sufficiently descriptive. All of this grows out of the fact that a fundamental distinction is made between intellectual experience and emotional experience. To intellectual experience we assign definite words and quantitative standards. For emotional experience we have no such definite words, measures, or comparisons.

In the present chapter disordered emotion as it is shown by psychotic and neurotic patients and by psychopathic personalities will be described.

Mania

Elation, distractibility, overactivity, and volatile expressiveness are the chief emotional symptoms marking manic reactions. These symptoms are shown in the excited phase of many sorts of psychosis, but are seen in their clearest form in the manic phase of the manic-depressive psychosis.

One intelligent and well-educated patient described his elation as follows:

"The exhilarated condition is essentially creative and synthetical and has as its characteristic a desire for composition. . . . It is characterized by an abnormal desire on my part for starting enterprises, a strong feeling of power for accomplishing and an abnormal adequacy, together with a craving for command. I may perhaps be said metaphorically to have got glimpses of the infinite. All of this usually culminates, in spite of various side schemes and ambitions, in an intense desire for intellectual activity and organization. . . . I think I perceive an almost mathematical unity and interdependence in all things. . . . Were the restless activity of this powerful mental delirium not so ineffably wearying, and its individual points of light not so ephemeral, its ecstatic pleasure would be comparable to that of the old Greek Gods. . . . The only sane state of mind which I know at all comparable to this exhilarated condition is that of a person deeply in love. . . . In my experience with the disease I am, when exhilarated . . . embarrassed . . . by the very intensity and generosity of my feelings, whose essence is kindliness and good-will towards men. But this benevolence is no longer administered according to the dictates of reasoning sympathy; it has rather become an exaggerated, insane beneficence or an all embracing widely extravagant munificence. The original sympathetic desire for the sharing of joy, happiness and well-being has run mad." *

Such elation consists of several psychopathological changes. First, there is a lifting or abolition of inhibition. The manic feels that somehow his ideas and desires are no longer subject to the customary inhibitions, restraints, and taboos of everyday life. Next, there seems to be a lack of the normal compulsion for logical thought. The elated patient feels that his inspiration is of such a high order that the usual plodding necessity of logic and reason can be transcended, so that the ordinary logical checks on thought are no longer important or necessary. Third, the manic may give expression to his usually repressed desires, wishes, and instincts in a fashion which is often crudely unconventional.

Looking into the content of normal elation provides a greater understanding of the abnormal exhibitions of mania. "In our daily lives the

* J. T. MacCurdy, *The Psychology of Emotion.* New York, Harcourt, 1925, 298–299.

greatest happiness seems to come from the prospect of achievement of cherished ambitions, whether these be concerned with one's career or with one's love affairs. When we analyze such emotions we see that contentment with actual achievement is a less violent affair. Further, we must recognize that situations which produce the purest joy are never purely altruistic. They come nearest to this in the case of parents elated over the progress of their children, or of lovers similarly overjoyed with the triumph of fiancé or partner. The egoistic component of this situation is discernible in the identification which characterizes genuine love. . . . [Elated] happiness comes from the vision of success in some undertaking which will indirectly benefit others." *

When compared with normal elation the manic differs in that his form of expression is derived principally from repressed wishes to which the patient gives expression in unconventional ways. We understand normal elation because it is related to ordinary and obvious life experience; but the elation of the manic is abnormal and surprising because it shows no clear relationship to the known life experience of the patient.

As to the basic cause of this difference between normal and abnormal elation, we may assume that there is a defect in personality function which results in emotional, as well as intellectual, disintegration. This disintegration is shown by uninhibited and disordered emotional expressiveness. Many individuals with manic tendencies are unusually excitable and overreact to slight stimulation throughout their lives; that is, they are of a cycloid temperament. When such individuals get into situations which are difficult or intolerable for them, they cannot maintain a state of affective integration. Therefore, minor circumstances may precipitate an explosion which we call "mania."

Next to elation comes distractibility as an outstanding characteristic of mania. This distractibility concerns feeling, as well as thought. A patient is said to be "distraught," which means that his emotional reactions are disordered and disconnected. One patient gave the following description of this condition:

"I feel that when I am exhilarated, my mind occupies itself, for the most part with its own affairs. . . . It is, as a rule, too busy and too much in a hurry to stop and to make minute, rational and detailed account in [the] passing of external objects. Its tendency is towards flightiness. . . . Ideas move so rapidly that grief follows inspiration, joy, anger and ambition in a fashion which is to me connected but illogical. . . . Naturally the more exhilarated I become the more difficult it is for me to reason to myself. . . . During the heat of my

* J. T. MacCurdy, *ibid.*, 185.

conversation I am momentarily carried away and believe my own stories. I am not, however, sufficiently carried away to prevent my taking account afterwards and to separate the truth from the falsehood and to experience regret for the latter. . . . During my worst and most severe exhilaration I have a tendency to become very emotional, hysterical and even at times to break down and cry." *

To understand how distraction disturbs clarity of feeling and thought, we have only to turn to our own daily experience. The desire to be understood makes our normal thought and feeling coherent and intelligible. When in everyday life we are concentrating on something and become excited, we tend to be incoherent and can be understood only with difficulty. If we answer a question in an irrelevant fashion because we are concentrating our attention on some other problem we are said to be "absent-minded." The thoughts of a manic patient, who is self-absorbed and in an ecstatic mood, appear similarly illogical and unintelligible.

Coupled with the symptoms of elation and distractibility are overactivity and the volatile nature of emotional expressiveness. Such individuals do not smile or laugh softly. They scream with pleasure or sob with joy over some phrase in their conversation which seems totally trite to the normal individual. This overexpressiveness is but another manifestation of the manic's elation and distractibility. The lack of inhibitions, the absence of logic, and the crude, unconventional emotional demonstration are the basis of the volatile expression of emotion, just as they are the basis for elation and distraction.

Another type of exaggerated good feeling is associated with the grandiose delusions which characterize the expansive general paretic patient. These patients have a pervasive mood of euphoria which exhibits itself in boastfulness. It is not uncommon for them to give checks for a million dollars to strangers or to tell fantastic stories of unlimited wealth to anyone who will listen to them. They are motivated by practically the same psychological mechanisms which are at work in the manic patient, but they usually do not display the other manic symptoms to such an extent. The paretic's lack of inhibitions and his tendency to distractibility, elation, and overexpressiveness are somewhat mitigated by the progressive destruction of brain tissue which blunts his ingenuity of thought and emotion.

Depression

Very few people go through life without periods of despondency, "the blues," or prolonged sadness. Such transient periods cannot be regarded as

* J. T. MacCurdy, *ibid.*, 301–303.

unhealthy or abnormal, even though the individual who is experiencing the depression may lack the psychological insight necessary to understand his own experience. Depressive moods are considered abnormal only when they continue over long periods of time, when they completely interfere with the everyday activities of the individual, when they are unmotivated, or when they lead to suicidal attempts. A distinction should be made between different kinds of pathological depression; namely, the depressive phase of manic-depressive psychosis, reactive neurosis, involutional melancholia, and a wide variety of anxiety states which include feelings of depression.

Depressed phase of the manic-depressive psychosis

This particular state is characterized by sadness, hopelessness, mental retardation, and feelings of inadequacy and unreality. It is "a cruel torture of the soul, a most inexplicable grief, a poisoned worm consuming body and soul and gnawing the very heart, a perpetual executioner, continual night, profound darkness, a whirlwind, a tempest, an ague not appearing, heating worse than any fire, and a battle that hath no end." *

The sadness is almost synonymous with depression itself. There is a lack of desire and ambition, together with a feeling of lethargy. Sadness is not necessarily related to the loss of some loved one. It is often identified with the loss of the feeling of personal ambition and worthiness. This loss leads to hopelessness which easily associates itself with a feeling of unreality. Human hope is maintained and supported by our desires and imagination of the future. The loss of this vital interest affects the future first, since dissatisfaction with present and past achievements is usually compensated for by an imagination of future desires and potential accomplishments. If this active interest becomes exhausted, we are no longer able to gloss over the minor difficulties of everyday life. We commonly put together all of our hopes in some form of personal faith ("The substance of things hoped for, the evidence of things not seen"). If sadness and hopelessness pervade mental life, they often involve a feeling of unreality which may or may not be accompanied by insight. Unreality is felt because interest is lacking, and things or events are real in direct proportion to our interest in them. The feeling of unreality may lead to the development of actual delusions. A depressed patient may insist that the sun has ceased to shine or that his heart has been removed. He may be so bereft of any attachment to things

* R. Burton, *The Anatomy of Melancholy.* (Edited by F. Dell and P. Jordan-Smith.) New York, Rinehart, 1927, 225.

in the outside world that there is no longer a distinction between the reality of himself and the reality of his surroundings.

With the progress of the depression a retardation becomes more evident, ". . . a sorrowfulness so weighing down the mind that there is no good it likes to do. It has attached to it as its inseparable comrade a distress and weariness of soul, and a sluggishness in all good works, which plunges the whole man into lazy languor, and works in him a constant bitterness. And out of this vehement woe springs silence and a flagging of the voice, because the soul is so absorbed and taken up with its own indolent dejection, that it has no energy for utterance, but is cramped and hampered and imprisoned in its own confused bewilderment, and has not a word to say." * This retardation is related to a deficiency in mental energy which, in turn, comes out of the person's sadness and hopelessness.

Simple retardation is by no means a rare occurrence in everyday life. It requires an effort to think or move actively when we are fatigued or sad as a result of some recent frustrating experience. We can think keenly and rapidly when we are engaged in solving some welcome problem, but distasteful exercises are slow. Temporary incompetence in our mental processes often follows an unexpected emotional blocking produced by some very unpleasant experience or anticipation. Such a sudden inhibition is a miniature depression with a miniature retardation.

Most depressed patients complain of either mental or physical inadequacy. This complaint is based on the realization that their energies and interests have been diminished to such a degree as to constitute a feeling of utter impotence.

All of these symptoms of sadness, hopelessness, unreality, retardation, and inadequacy seem to have a common characteristic, namely, a lack of mental energy or a deficiency in the drive or motivation for everyday existence. If this deficiency can be filled in, the psychopathological symptoms will disappear. The core of the depression is a felt lack of a motive for existence, and of this lack the patient is most keenly aware. Psychologically speaking, some emotional idea or complex may have become so powerful that total repression of all ideas is inevitable if the person is to escape the consequences of this internal conflict. Since the conflict itself is unconscious, the patient does not realize the overwhelming nature of the repressed idea. This mechanism is similar to the effect of guilty conscience in normal life. Frequently the feeling of guilt or dejection in a depressive psychosis is accompanied by a conviction of sin and a benumbing lethargy. When this

* St. John of Damascus, quoted from J. T. MacCurdy, *ibid.*, 343.

occurs it may provoke mental promises of future good deeds and thoughts, since the true cause of his sorrow is unknown.

Reactive neurosis (depression)

In the reactive type of depression, the patient is excessively disturbed over some real trouble that happened in the recent past. The worry is accompanied by a feeling of hopelessness and sorrow, but usually there is no clear evidence of mental retardation or feelings of inadequacy and unreality. Instead of a crushed hopelessness, there is an actual overt display of emotion in which tears and wailing are prominent. Usually the excessive grief is attached to some occurrence, such as a death in the family, which is a normal excitant of grief. The distinction between normal grief and reactive depression is largely determined by the duration and by the vigor of the emotional display. The patient's mind is filled with exaggerated emotion and attention directed toward the precipitating, distressing event. The event itself is real, but the response of the patient is so intense and prolonged that it is definitely in discord with the facts.

CASE **30:** Mrs. C.C., aged twenty-nine years, was eager to have a child. She had been married to a University instructor for eleven years and though her time was well and happily occupied, she longed for the time to come when they could afford to have children. Finally she became pregnant and prepared for the child's coming with tremendous emotional enthusiasm. She told all her friends, talked constantly about what she would do, bought clothes enough to provide for two or three children, and was supremely happy. Everything progressed well until the time set for delivery, but the child was not born till three weeks later. It was a still-birth. The patient cried for several days. She did not sleep, ate very little, and remained in bed. She continued in this condition for about a month, and then decided to adopt a child. She did so two weeks later and was then content, happy, and interested in the new child, apparently having given up grieving over the death of her own child.*

Depressions such as that of Case 30 are often the result of unsuccessful compromises which ambitious persons are forced to make because of circumstances over which they have no control. The compromise forces retreats which are, in part, prevented by obsessive preoccupations with the painful and frustrating situations. These obsessional mechanisms serve to camouflage the feeling of failure in reaching some preconceived level of aspiration, and are followed by a partial psychological regression.

* Case from S. H. Kraines, *The Therapy of the Neuroses and Psychoses* (2d ed.). Philadelphia, Lea & Febiger, 1943, 404.

Involutional melancholia

The depression in involutional melancholia is differentiated from other forms of depression in that it is marked by overactivity ranging from restlessness to frenzied agitation. As a rule, such agitated states do not seem to depend on any logical, factual basis. The involutional patient attaches his depression to some totally irrelevant or imaginary cause, while the agitation is for the most part related to the fear of old age and death.

Confusion or perplexity

Many psychotic patients experience a state of perplexity or confused emotionality. They seem bewildered and complain that there seems to be a "mist" or "wall of snow" which is interposed between them and reality. Such individuals are restless and apprehensive in an aimless fashion and act as though they were dazed or dreamy. They speak slowly with initial difficulty. They may repeatedly ask, "Have I done something?" When asked what they have done, they will say, "I don't know, I feel all mixed up. I don't know what I am talking about. Everything is mixed. Am I happy or am I sad? I don't feel the same for two minutes." This subjective perplexity engages the patient most of the time. His expression and his introspection indicate that he is neither deeply depressed nor elated; rather, he is puzzled and disoriented to varying degrees. When asked where he is, what time it is, or who he is, the patient will either say he does not know, or he will go on talking about something else as if the question had not been asked. At times, he may find himself and be quite accurate in his orientation for several days, but relapses are common.

The disorders of feeling evident in these cases add to our difficulty in explaining them. The patient is peculiarly distressed by his unsuccessful efforts to control his thoughts and to understand them. His experience is similar to that of a tired person who has been roused from sleep and attempts to decide whether he is actually awake or still dreaming. In fact, perplexity acts much in the same way as depression to bring about a retardation of thought and feeling. Some patients explain the distress to themselves as a feeling of guilt, saying that it is a result of wickedness or of sin and that they are ashamed. This explanation on the basis of a false idea differs from that offered by the depressive patient who will say, "I am an evil man," while the perplexed patient will say, "They say that I am an evil man."

One way of trying to understand these confused states is to relate the thought and feeling process to our everyday distinction between reality

and nonreality; for example, the contrast between wakefulness and dreams during sleep. As we turn our attention to our inner thoughts, either in dreams or in fantasy, they tend to become "real." A drowsy person is inclined to think that his dreams are real, but when he awakens thoroughly, he checks himself, grasps his surroundings accurately, and recognizes that his dreams were unreal. The perplexed patient attempts this but cannot achieve a consistent feeling of reality. Instead, he remains in painful confusion because he can neither affirm nor deny the truth of his thoughts.

Another variety of emotional confusion which follows certain brain lesions is that which has been termed *pathological forced laughing and crying*.[10] Such patients lose control over their emotional expressions so that laughter or crying starts as a result of very slight stimulation. The stimulus for the outburst may be either adequate or inadequate, appropriate or inappropriate. One patient cried whenever she was spoken to or when anyone sat beside her. Another was forced to walk about the hospital with his gaze fixed on the floor, for if he met anyone's gaze, he was immediately overcome by gales of laughter which would last four or five minutes. Many intelligent patients of this kind are conscious of the insufficiency of the stimulus and are painfully aware of the incongruity of their behavior. Such a patient will laugh against his will although his mood is not gay, and this will greatly distress him. Others will indicate by gestures of impatience and denial how much they are annoyed and ashamed of their tears. In brief, the outward expression of the emotion may or may not correspond with the patient's real feelings.

Apathy

An emotional dullness that may amount to a complete loss of affective experience is termed apathy or anhedonia. Apathetic persons have no real joy in life, no human feelings. To them nothing matters; everything seems the same; they feel no grief and no gayety; their hearts are not in what they say; their emotionality is flat and indifferent. The condition occurs following physical illness, during neurosis, and is an outstanding feature of schizophrenia.

For example, following influenza there is often a loss of appetite, insomnia, a feeling of weakness, and a loss of desire and satisfaction for most things in life. Some feeling change has taken place so that desire and satisfaction are injured, energy gone, and only a vague restlessness remains. The same loss of feeling may follow surgical operations, the menopause, or the first awareness of senility.

This anhedonia is frequently reported by neurotic patients. A personal description of this type of lack of feeling has been given as follows:

"I still continue to suffer constantly; I have not a moment of comfort and no human sensations. Surrounded by all that can render life happy and agreeable, still to me the faculty of enjoyment and of feeling is wanting—both have become physical impossibilities. In everything, even in the most tender caresses of my children, I find only bitterness. I cover them with kisses, but there is something between their lips and mine; and this horrid something is between me and all the enjoyments of life. My existence is incomplete. The functions and acts of ordinary life, it is true, still remain to me, but in every one of them there is something wanting—to wit, the feeling which is proper to them and the pleasure which follows them. . . . Music has lost all charm for me, I used to love it dearly. My daughter plays very well, but for me it is mere noise. That lively interest which a year ago made me hear a delicious concert in the smallest air their fingers played—that thrill, that general vibration which made me shed such tender tears—all that exists no more." *

Some of these patients complain that there is a splitting away of emotions from their thinking. The relative importance of thought and feeling becomes confused. Almost everything occurs in the same "flat" manner. It is as if the differences between important and unimportant events and experiences had been washed out and nothing remained to which any special importance could be attached. The proverb, "The salt has lost its savor," suggests that such experience is recognized and understood by most people.

Neurotic apathy and the emotional dulling in exhaustion states are understandable in at least two ways. First, there may be true fatigue, so that real imperception results. The patient actually does not perceive or grasp the full meaning of things which occur around him, and so fails to react in the usual way. Second, the person may be so preoccupied with his own phobias and anxieties that the events of everyday life become relatively banal and unimportant to him.

The experience of apathy in schizophrenia is different in quantity and in resultant behavior from the anhedonia of neurosis or physical weakness. In schizophrenia there is a disappearance of the finer shadings and gradations of feeling. Such a patient no longer has any regard for his surroundings, nor does he suit his behavior to the situation. He is untidy, dirty, unwashed, unkempt, and exhibits no feeling of disgust or shame. He becomes insensitive to bodily discomfort. He may assume and hold uncomfortable

* H. K. Johnson, "The Symptom of Loss of Feelings," *Amer. Jour. Psychiat.*, 1935, *91*, 1327–1328.

positions; he may burn himself with a cigarette; he may glare at the noonday sun; he may not chase away flies that settle on his eyelids. He is without sympathy and equally indifferent to the misfortunes or good fortunes of others. He may grievously injure other patients because of some trifling event, or receive the visits of his friends and relatives without any sign of greeting or emotion. All the higher moral sentiments seem to have disappeared. A great many of the criminally insane who have been convicted of heinous crimes show gross lack of moral and ethical ideals and little appreciation of the seriousness of their act. The most outstanding characteristic of such emotional dullness is the apparent extreme uniformity of apathetic feelings or moods. It is not too hard to comprehend the emotional abnormalities of mania or depression, but it is difficult to understand the psychology of apathy. There are various psychotic conditions which may give rise to an apathetic state.

The dementia praecox patient,[8] whose account of his inner life was cited in Chapter 24, provides some information about schizophrenic apathy. He maintained that his loss of emotionality was considerably less than it may have seemed to the observer. According to his account, external stimuli still produce emotional experience in the schizophrenic. Foods provide pleasant feelings. Attitudes toward relatives may be of high affective content, and emotional interest may extend to many activities going on around the patient. Schizophrenic apathy is apparently due to two major factors: (*a*) the patient is so preoccupied with his hallucinatory experience that he blocks or represses outward evidence of affective response in order to favor the ideas which have taken possession of him; and (*b*) the hallucinations are so closely coupled with his affect that they give rise to silly and inappropriate expressions. For example, "A thought-out-loud [hallucination] stating 'Let's make Johnny feel happy' penetrates the conscious field. Immediately my affective tone shifts from one of indifference to one of pleasure. Then a thought-out-loud will state: 'Let's make Johnny feel sad.' Immediately the affective state shifts to one of sadness." * Evidently, hallucinations determine the observable emotional expression. However, without introspective information provided by the patient it is very difficult to appraise the lack of emotionality.

In general, apathy depends on (*a*) diminished receptivity and responsiveness of the organism, and (*b*) on a dissociation or preoccupation in which the usual emotional component of everyday experience is more or less

* J. Lang, "The Other Side of the Affective Aspects of Schizophrenia," *Psychiatry*, 1939, *2*, 198.

completely split off from the remainder of consciousness. In this latter aspect it partakes of the distraught and unreal experience which characterizes depression.

Anxiety

The term *anxiety* includes the vague fears, worries, guilt feelings, feeling of insecurity, and apprehension, together with the felt need for reassurance. The experience itself is one which every human has had for greater or shorter periods of time and in varying degrees of intensity. It is an experience easily recognized by oneself, and "understandable" when described to another. The distinction between normal anxiety and morbid anxiety is the distinction between worry and dread. This difference is usually a real one in terms of subjective experience. Worry is the name given to apprehension or to guilt feelings of which the origin is usually known and the restlessness can be discharged by some action. Dread (morbid anxiety) is a nameless terror, a fear of nothing. It appears (usually suddenly) with a high level of feeling tone. It overwhelms. It has no conscious origin, though the patient vainly seeks such an origin or explanation. It usually goes as it came, suddenly and without being understood. For example, worry (normal anxiety) can be remedied by making amends and forgiveness. Dread (morbid anxiety), having no conscious origin, is not relieved by expiation.

Morbid anxiety is a common experience of the neurotic and of many psychotic patients. It is accompanied by an increase of general fearful and irritable tension, a hypersensitiveness to noise, lights, or other stimuli, and changeable or vague physical complaints. Attacks of morbid anxiety are commonly accompanied by cardiac disturbances, difficulty in breathing, perspiration, dizziness, tremor, or stammering. The fears are often related either to physical disabilities, such as heart failure and suffocation, or to moral culpability. Freud's original theory was that any anxiety neurosis could be explained by a lack in sexual outlet and sexual gratification. Later he changed this, holding that anxiety comes from forbidden wishes, from acts which the person would commit if he dared.

More recent psychoanalytic hypotheses have assumed that anxiety is due to an increase in sensory attention and motor tension, called "anxiety preparedness." This state leads to the development of anxious feelings and to a repetition of some old traumatic experience, not unlike the conditioned fear response. The original traumatic experience tends to push itself from the unconscious in such fashion that the emotional responses paralyze the capacity for adjustment to immediate situations. As a rule, such anxiety is

directed against mental images of a dangerous nature, which in the neurosis come partially or fully into consciousness.

It is known that morbid anxiety can be set up by nutritional deficiency and relieved by a replenished diet. When it occurs in connection with organic pathological conditions such as certain brain tumors it may be relieved by surgical operation. It can be created during an hypnotic trance where suggestions are given with the intention of precipitating a mental conflict between motives or desires following the trance. Even when any suggestion of anxiety was avoided, the artificially created conflict has been found to lead in most normal individuals to a report of anxiety, together with varying physical complaints. Hypnotically established anxiety and conflict can be removed by subsequent rehypnotization and the suggestion that the conflict no longer exists.

In the field of psychopathology anxiety is considered a central and most crucial problem. There are many theories and much observation. Experiments which seem to be directed to the problem of the nature or origin of morbid anxiety all too frequently turn out to be concerned with restlessness, apprehension, or undifferentiated excitement. Hebb [2] reported two instances of morbid anxiety in chimpanzees which occurred and disappeared spontaneously. This observation leads one to believe that morbid anxiety does occur in animals. However, the apprehensive behavior of the frustrated animal in a learning experiment could much better be characterized as worry than as dread.

Acute fear or phobia

Apparently acute fear or phobia differs from anxiety in that it is almost always directed toward some object, person, or idea. It seems to be distinguished from normal apprehension in that it is related to events or experiences which would not set up a really fearful reaction in the ordinary individual. There are long lists of technical words used to describe the various phobias; for example, "agoraphobia," fear of open places; "claustrophobia," fear of closed places; "thanatophobia," fear of death; "zoophobia," fear of animals. A distinction has been made between specific fears and general fear, or panophobia. In the latter condition, a terror exists that is not directed toward any particular object or event, and may spread quickly from one situation to another. It is doubtful whether a real subjective distinction can be made between phobia and dread, particularly panophobia and dread. Phobias of specific objects, persons, or situations seem to be examples of walled off or encapsulated morbid anxiety while

panophobia, which usually starts with a specific fear, seems to be a condition where the capsule is broken and the fear spreads in all directions.

Subjectively, common phobias such as fear of high places or fear of snakes are distinguishable from dread or morbid anxiety only in that they have a point of reference. Various explanations have been offered for these phobias. In some instances the phobia seems directly related to some exaggeration of fear or fright in early childhood. There may have been a punishment, social taboo, or religious instruction which the individual no longer remembers. Possibly the affect derived from this experience has persisted and extended, attaching itself to associated events or ideas in adult life. Another explanation holds that many phobias bear a logical or symbolical relation to some repressed complex. They are developed only when events occur in everyday life which are in some way related to repressed material. Some psychoanalysts have advanced the theory that phobia is not an expression of fear but a feeling derived from sexual prohibition, considering that it is a substitute or a displacement of the affect that is associated with sexuality, particularly repressed childhood sexuality.

The development of fear attitudes has been the point of a great deal of research, particularly with normal, growing children. One study [4] dealt with the response of children and adults of differing ages to a live snake. Up to the age of two, children displayed no fear of snakes. Between the ages of three and three and a half there was a cautious response, so that the children paid close attention to the snake's movements and seemed somewhat on their guard when approaching it. Definite fear of snakes showed itself only after the age of four. Adults were much more pronounced in this fear reaction than were children. Tests of college students indicated that more of them were afraid of snakes than were small children. This fear of live snakes constitutes an interesting example of an attitude of fear or phobia developing progressively in the normal child from year to year.

It has been thought that the study of methods of relieving children's fears might give insight into therapeutic methods for the relief of phobia or dread. In general the most successful methods with children are those of social imitation and direct conditioning; that is, actual use of, or entry into, the fear-producing stimulus or situation. In some adult patients relief has occurred when, under favorable circumstances, they have been able to correctly establish some relationship between the frightening experience with which the fear had been primarily associated and the events which led to further frustrations in the adult life. The patient's objective was to make the correct association and, in conversation and his own thinking, to review the original fear-inciting experience until it was fully in his consciousness.

When he was able to do this, instances have occurred where recovery from particular phobias resulted. In other cases of phobia it has been possible for the individual, either by his own volition or through compulsion by others, to establish systematic daily contact with the fear incitant. In response to this procedure certain phobias are said to have lost vigor and become unimportant.

Anger and irritation

Whether or not anger and irritability are normal or abnormal depends chiefly upon the intensity and appropriateness of a given feeling and reaction. All varieties of anger and irritation may occur in abnormal patients, although such reactions are rarely the cardinal symptom of any one of the mental disorders, except in the case of certain forms of psychopathic personality.

The outbursts of anger and irritation which are seen in manic-depressive and involutional patients are often of a self-protective nature. When our own self-regard indicates to us our shortcomings, we frequently tend to evade the issue by searching for similar or worse shortcomings in others. Usually this process is hampered by a more or less complete recognition that the behavior of others in this respect is none of our business. The psychotic patient has no such inhibitions and, consequently, tends to justify or correct the defects in his own system of ideas by discovering faults in others. When he fails in his attempt to force such attentions and ideas upon his surroundings, or when people intimate that his self-reproach has no good basis in fact, he becomes irritable because he vaguely feels that their attitude implies some criticism of himself.

Exaggerated rage and anger are commonly spoken of as *furor*. Such attacks occur in dementia praecox, epilepsy, senility, and in some other organic brain disorders. Schizophrenic furor is usually associated with a crisis in the hallucinatory system of the patient. For example, voices may have been telling him for weeks that he is divine, and finally the voices tell him that he must prove his divinity by purging the world of sin. In attempting to carry out such a purge, he will give vent to a display of anger and fury which may lead to serious injuries to himself and others. Similar attacks occur in some epileptic patients, either as a postseizure phenomenon or in psychic seizures. These attacks consist of a temporary display of senseless rage and fury from which most patients recover with a total amnesia of the event. Milder outbreaks are seen in senile and other organic brain conditions where the furor states seem to be due to damage or deterioration of brain tissue.

Much observation and investigation have been centered around the hypothesis that chronic irritation and anxiety are produced by frustration and emotional conflict in the everyday life of a neurotic person. Some have held that neurosis itself is a result of frustration and conflict. When we remember that no human being ever lives through any period of his life without either internal or external frustration or conflict, and when we think of the number of normal individuals in contrast to the number of neurotics, we must conclude that frustration and conflict alone are not sufficient to set up a neurosis under ordinary circumstances. It is also true that the neurotic's anxiety and irritation have not been found to differ essentially, except in degree and duration, from the anxiety and irritation shown by the normal individual. The difference is in the response to the feeling—what the patient does about his feeling—rather than in the feeling itself. Frustration and conflict are unquestionably able to precipitate overt displays of anxiety and irritation. Ordinarily, however, they do not produce a true neurosis unless there is a constitutional lack of integration and resistance in the frustrated individual.

Persistent anger continuing over very long periods of time is shown mainly by that type of psychopathic personality that has been called "trouble-maker" or "quarrelsome psychopath." [5] Such persons are oversensitive, basically weak and egocentric, rigid and unable to relax. Their inner tension expresses itself in irritable quarreling which serves as a tool to satisfy ambition and intensified desire for prestige. Their righteous attitude easily leads to nagging, faultfinding, dogmatic contradiction, and a tendency to depreciate others. These psychopaths not only *will* not, but *can* not allow themselves to be influenced or convinced. As a result, they develop a feeling of almost constant irritation which exhibits itself in angry outbursts at the slightest provocation.

Love

It is apparent from previous chapters that disturbed love and sex emotion are intimately involved in the psychopathology of both neurosis and psychosis. The entire system of Freudian psychoanalysis was erected on the theory that repression, suppression, and deviation in love (libido) can be found in every neurotic. The effects of social customs, child education, and personal relationships profoundly influence the ways in which these basic instincts and feelings can manifest themselves. Many systematic investigations have shown that there is in practically every psychotic or neurotic patient some disorder or deviation in sex and love feelings.

Of all the expressions of emotion, love is guarded by the most complicated set of taboos and social customs. Almost any expression except those leading to, or part of, marital relationship is taboo. No really maladjusted individual is capable of dealing with these complications. Furthermore, the complications themselves may give rise to the maladjustment. In our society many of the expressions of love are associated with ideas of sin, blame, and other religious or ethical concepts. These scruples add to the troubles which any individual has in adjusting his inner life to the circumstances of everyday existence. Whenever a person is weak, sick, has formed bad habits of social adjustment, is unintelligent, or immature, is placed under personal stress, or meets any of the usual difficulties of life, he will be unable to cope effectively with the complications of an existence which is subjected to very rigid and exacting cultural restraints. Regardless of whether sexual maladjustment is considered a cause or an effect of these difficulties, it is to be expected that neurotic or psychotic individuals will be more frequently disturbed with respect to love and sex than to any other aspect of their emotional life.

Abnormal self-love is spoken of as *narcissism.* It is considered infantile in nature, in that most persons live through and outgrow it. When it is present in the adult, it constitutes either a fixation or a regression in development. Such persons are interested only in themselves—are in love with themselves. On the sexual side, gratification is obtained through masturbation. Many psychotic patients show an exaggeration of masturbatory activity and little or no interest in adult heterosexuality. They endlessly adorn themselves, sometimes with fantastic garments or odd coiffures, and often seem so disinterested in others that they find complete satisfaction in their own being. The narcissistic behavior of some of these patients evidently results from a developmental failure, a fixation, or sexual immaturity. In others it seems to be due to a true regression to an infantile state, and may be taken as an indication that these patients have lost their previously strong emotional attachments to their spouse, children, or parents.

The Kinsey [6] report has provided information about the nature, variability, and distribution of sex outlets of the human male. It is no longer possible to hold to the idea that sex, of itself, save in the rarest instance, is the basis of neurosis, psychosis, or psychopathy. The hitherto unexpected high frequency of all forms of sex outlet (including the so-called perversions) in the normal, well adjusted population conclusively demonstrates that sex feeling or behavior is not a primary cause of psychopathology. It remains true that the mental patient is, more often than not, overtly and covertly concerned with matters sexual. But so is the normal person. The

difference seems to lie in the fact that the abnormal person uses his sex feelings or experience to provide a rationalization—usually a personally unsatisfactory rationalization—for his felt morbid anxiety, aggression, or hallucinatory experience. He has no real understanding of the source or nature of the feelings which overwhelm him. Several decades ago these morbid feelings were "explained" by some failure in personal religious faith. Following Freud they have been "explained" as sex repression or aggression-frustration. In the light of present day science the most probable explanation will come from the study of the biochemical processes of the organism. Sex in its broadest sense does serve as a dynamic biological and psychological force, but not as a necessary psychopathological force.

Summary

In many instances the most marked deviation from normal behavior shown by psychiatric patients is in the realm of emotional experience and expression. Excellent descriptions of this phase of mental life are available. The dynamic effect of emotion on behavior provides a basis of clearer understanding of the behavior of the mental patient than can be had from an examination of the intellectual processes involved. It must be remembered that this "dynamic" material is mostly descriptive; cause and effect can only rarely be established or even logically assumed; although contributing greatly to understanding the mental life of the patient, explanations based on dynamics are mostly unverifiable. The following chapter will present the experimental findings relevant to the descriptive evidence given in this chapter.

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SECTION FOUR
PSYCHOPATHOLOGY

Chapter 26 *Disordered Emotion: Experimental Findings*

DISORDERED EMOTION IS EVIDENT EITHER IN TERMS OF AN INTROSPECtive report or in behavioral reactions. By properly controlled experiments, we can determine whether an animal can respond differentially to different colors, or by implication, can distinguish one hue from another. We can be sure that the animal has different subjective experiences to different colors. Unfortunately we have no way of getting a consensus with regard to the feeling of pleasantness or of anger. Affect and emotion are evidenced by how we feel about something and by overt expressions that others can observe. The "feel" evidence is subjective; that is, a personal experience which can be known by others only if described or communicated by the person who had the experience. This distinction between subjective and objective evidence is not always clear. Many who have written on this subject have not held to this distinction, since there is no generally accepted theory, hypothesis, or formulation which covers affective phenomena. There is as a rule, a low, positive correlation between the reported amount or presence of the affect and changes indicated by certain measuring instruments, such as the indicators of change in blood pressure or respiration.

Psychology

Pleasantness and unpleasantness constitute the distinctive subjective characteristics of that part of the mental life of an individual which is termed affect or emotion. Such personal experience is known to others only when they ask directly or indirectly, "How do you feel about it?" and receive an expressive and intelligible reply.

Direct questions concerning affective experience in abnormal individuals

are often particularly difficult to phrase so that the person will give comprehensive and informative answers. There is frequently such a wide deviation between the behavior and the report of how the patient feels that the discrepancy itself can be considered evidence of psychopathology. For example, a dilapidated paretic patient may say that he feels fine, that there is nothing wrong with him, or that he could lift the corner of a building with one hand. Another real difficulty may arise from the problem of understanding the words which an abnormal individual uses to describe his feelings. The schizophrenic patient makes up words because none of the ordinary terms—such as fear, awe, or curiosity—describe the particular feelings which he has. Other patients will ask, "Do you mean how I feel about it now, or how I felt about it before I got sick?" They imply that there is a difference between the feeling of fear or anger when they are sick, in contrast to those feelings when they were well. Many psychotic patients will elaborate in a romantic way descriptions of emotional experiences for which there is no overt evidence other than that which implies that it might have occurred in their fantasy life. It will frequently happen, therefore, that they contradict themselves in describing their feelings and experiences on successive occasions. In spite of this lack of reliability, direct questioning is still the most productive form of getting information about subjective emotional experience.

Evidence from interviews

Several studies have made use of a standardized type of interview in which both normal and abnormal individuals were asked the same questions in a conversational fashion while the replies were recorded verbatim.[16] If the individual being interviewed is not too disturbed, is fairly intelligent, and is cooperative, a fair degree of reliability can be obtained in the answers which pertain to emotional experience. It has also been found true that a good deal of information can be obtained concerning emotional events which occurred in the childhood or adolescent years of life, although one cannot always be sure whether these reports are fact or fancy. In general, the statements made by mental patients about their emotional life bear out the descriptions which were given for the various types of emotional experience in the previous chapter. During the convalescence from an acute phase of a psychosis, answers to questions are apt to be both confused and confusing. The patient may not remember why he was angry, why he was depressed, or exactly how his feelings then were different from his feelings now. It seems as if he is trying to describe what happened to him and how

he felt about it, much as a normal individual might try to describe the terror or rage which took place in a nightmare.

The patients themselves find difficulty in understanding the changes in their affective experience. Freeman [9] reports that one of his patients was observed to chuckle to herself several times during the afternoon following prefrontal psychosurgery. When asked about it, she said, "All those foolish ideas I had. How did I get them anyway?" Another psychosurgery patient who was trying to describe the change in her experience of pain from cancer after psychosurgery said, "The pain was purple, purple, purple. Now it's pink, but it isn't white."

Psychiatrists have depended on the interview for the major part of their assessment of the psychopathology of the mental patient. They form their opinion on the basis of the actual report given by the patient, the form and emotional coloring of the report, and the behavior during the report. Since practically every other test or measure of psychopathological emotion is validated in terms of psychiatric opinion, it is apparent that the interview is regarded as the most dependable method at our disposal at present.

Questionnaires

The values of the questionnaire method in collecting information on emotional life have been the subject of many investigations. Essentially, the questionnaire poses a list of more or less simple questions which are supposed to be answered by a choice of "Yes—No—Do not know" or by simple fill-in sentences. A questionnaire is given with the assumption that the person answering the question understands the words and ideas and is trying to answer as truthfully as possible. If the question is one whose answer may reflect in some way to the discredit of the person answering, not much validity may be expected. If the person taking the questionnaire either does not know the purpose of the procedure or misinterprets the purpose, not much validity in results can be expected. One attempts to compensate for the expected individual inaccuracies by taking large groups of patients suffering from the same type of mental disorder, in the hope that the errors may cancel each other and leave apparent the major trends. From the standpoint of abnormal psychology, such investigations emphasize consistency rather than truthfulness of report. That is, if any considerable number of patients will answer the questions in the same way, it is of more interest than whether that report is either true or false.[15]

A very good example of the proper use of a questionnaire was provided by Dollard [6] who used this method to study fear in a group of three hun-

dred battle-wise riflemen. The distribution of answers with respect to symptoms of fear is shown in Figure 36. This study served as a basis for actual military training in World War II. It demonstrates how a well-conceived questionnaire may be of great practical significance.

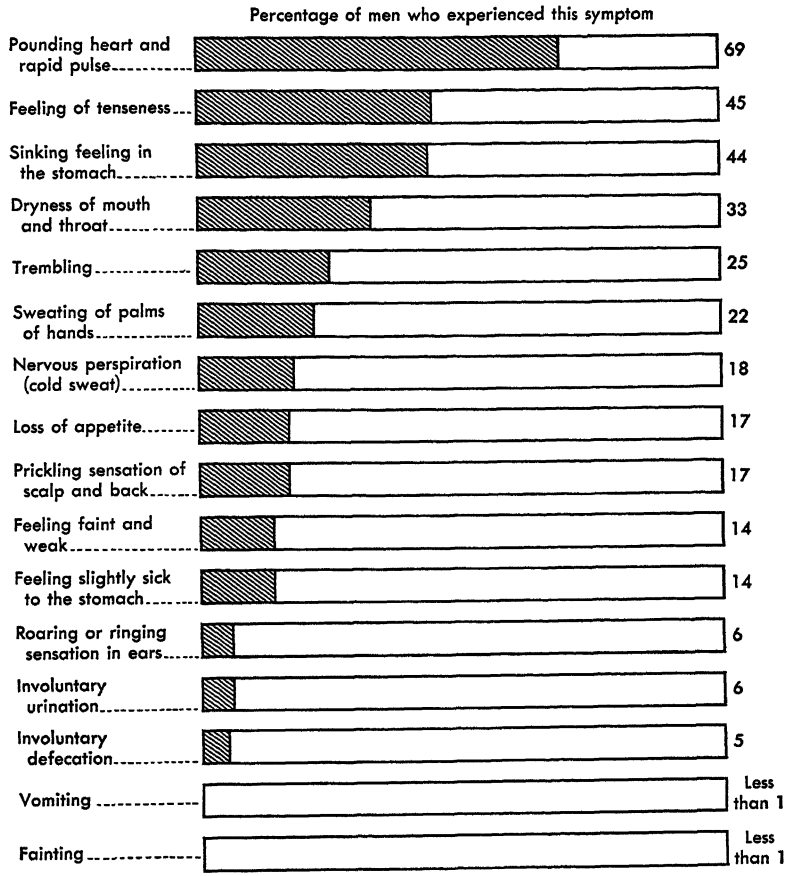


Fig. 36. The symptoms of fear. These percentages were those mentioned by men who had been in the front line of battle. Percentages total more than one hundred since informants usually mentioned several symptoms. (Redrawn from Dollard.)[6]

Another example of this method of investigation was one [17] which studied the reports concerning fear, anger, and the occurrence of physical disease in childhood in groups of normal persons and psychiatric patients. No real correlation was obtained between an individual's fearfulness or ill temper and his general mental health. Those persons, either normal or abnormal, who tended to be fearful also tended to be ill-tempered. Still another study [20] which concerned itself with the religious attitude of various groups

of psychiatric patients found no significant differences in responses between normals, schizophrenics, manic-depressives, or psychoneurotics. Practically all of them tended to report the more conventional attitudes of their own particular faith without any indication that the mental abnormality had particularly altered their religious attitudes. It seems probable that the questions and purposes of this last study were misinterpreted by the patients.

Many workers have made use of the Bernreuter Personality Inventory. This is a questionnaire that can be scored for different personality traits, one of which is neurotic tendency. Landis and Katz [19] found that about three fourths of the answers which neurotic patients gave on the Bernreuter were verified by the previous history of the patient. The greatest source of disagreement in the answers lay in a contradiction between the patient's own opinion of himself and his past record. The score on the test did not prove to be an adequate measure of neurotic tendency so far as its correlation with the hospital record was concerned. The score, when high, was usually found to be indicative of poorly adjusted or neurotic personality. When the score was low, no conclusion could be drawn concerning the emotional adjustment of the individual.

Unless the questionnaire is carefully constructed for a very specific purpose and the persons filling out the blanks are properly motivated the questionnaire results are all too often misleading. The best use of the method seems to be as a preliminary screening device for the detection of persons who should be subjected to a more intensive individual examination—usually an interview. When specially devised questionnaires were used to screen large groups of military personnel with respect to suspected neurotic tendency, they were found to bring two thirds to three fourths of the neurotic or potentially neurotic individuals to the attention of the neuropsychiatric unit. At best the questionnaire should be specially devised for a particular aim; it should be used with properly motivated groups; it should be used with caution for investigating any one person; and any conclusions drawn from its use should be subjected to verification by individual study, usually by the systematic interview method.

Hypnotic experiments

During the past hundred years many attempts have been made to study the emotional life of both normal and abnormal individuals through the use of hypnosis. It has been assumed that in a deep trance information might be obtained concerning either the emotional state of the hypnotized individual at some particular time, or concerning his response to some specific

set of circumstances which apparently produced an emotional reaction in him. That this goal can be accomplished in certain persons has been demonstrated time after time. Unfortunately, not all human beings are hypnotizable, nor are all of those who are hypnotizable capable of being put into a deep enough trance so that emotional factors may be investigated. Probably not more than 10 to 20 per cent of human beings can actually be studied in this way.

Whenever deep trance can be induced, many interesting findings concerning emotional experience may be expected.[11] One can ask a person in such a trance to live through again the experience of some previous emotional event which has been repressed or forgotten. One can establish in the mind of the deeply hypnotized person a suggestion that he has been involved in some acute emotional shock, and have the subsequent behavior of the patient indicate that the suggestion has been accepted and that he is reacting as if the suggestion were true. One can lead such hypnotized individuals to portray all of the appropriate symptoms of an acute neurosis or hysterical condition.

An interesting instance of both an antisocial compulsion and the attendant emotional disturbance was reported by Watkins [29] who hypnotized an enlisted WAC working in a military intelligence office and questioned her as follows:

E: You have a message given to you by your Commanding Officer. You are working in a military intelligence office and know the seriousness of not being able to keep confidential information. Furthermore, you know the consequences of disobeying a military order from a superior officer. Yet, in spite of this, you are going to tell me that message. It is rising in your throat, and you will not be able to keep it down. It is getting higher, higher, higher. Now it is on the back of your tongue. Now it is in the middle of your tongue. Now it is on the tip of your tongue. Now it is escaping from your teeth. You will endure the most extreme suffering until you release it and speak the message. Speak it! Speak it! [During all this time the subject's anxiety kept constantly increasing. Her face turned a livid red. She writhed all over, wrung her hands, made the most twisted grimaces and facial contortions. Finally the message virtually "exploded" from her.]
S: The WAC detachment will embark tonight at 1930. [She immediately sighed and slumped in her chair. She was then brought out of trance.]
S: My God, you didn't have to choke it out of me! *

In addition to the fact that a deep trance can be induced in only a few individuals, there is the further difficulty that little is known about the

* J. G. Watkins, "Antisocial Compulsions Induced under Hypnotic Trance," *Jour. Abn. Soc. Psychol.*, 1947, *42*, 257.

nature of the hypnotic trance itself. Whether hypnosis is a state of exaggerated suggestibility, a modified sleep state, an evidence of hysterical personality, or just what it is, either psychologically or physiologically, is still an open question. Until the nature of both hypnosis and emotion are more clearly understood, experiments of this kind cannot be too helpful in the analysis of the basic psychological mechanisms operating in emotional deviations.

Autobiography

Whenever it was possible in previous chapters, examples have been given of the way in which emotional responses are reported by mental patients. One of the most enlightening presentations of this sort was that of Leonard [22] in his autobiography, entitled *The Locomotive God,* which was cited in Chapter 7. The use of such personal documents as explanatory material in abnormal psychology, particularly with relation to emotion and personality, is not common. It has been thought that mental patients lack so much in self-understanding and are so completely at the mercy of their distorted emotions, that it is usual to minimize the value of their autobiographical reports. Since it is possible to guard against fraud, errors in memory, rationalization, and the like, we may gain much knowledge from the experiences of those who have lived through psychotic and neurotic episodes. As Allport [1] has pointed out, the use of such autobiographical material anchors our knowledge in the bedrock of human experience and can meet the critical tests of science; namely, understanding, prediction, and control.

Psychoanalysis and the problem of emotion

Psychoanalysis, as a method, has made it possible to probe deeply into the nature of emotional mechanisms in both normal and abnormal persons. For the most part, analytical reports are clinical observations which were made during therapeutic sessions, together with speculative explanations advanced to explain the observations. These explanations usually centered around the development of unconscious wishes and desires, and around the ways in which the analyzee either conceals or explains his behavior and thoughts which, for one reason or another, he cannot easily tolerate; that is, the mechanisms of self-deceit. There exists a very considerable literature which has been directed toward the experimental verification of many of the psychoanalytic concepts. Sears [24] surveyed these studies as they related to emotional factors.

The concept of infantile sexuality, which forms the basis of many of our emotional attitudes and affective experiences, is well supported by investigations which have been carried out with children and adolescents. Sexual practices in childhood have been shown to be exceedingly common and seem to be associated with the same kind of guilt feeling as is found among adults in comparable conditions.

Freud's theory of an Oedipus relationship (namely, that the child is in love with the parent of the opposite sex, which situation patterns most of his later emotional tendencies) has not been universally verified by either experimental or sociological investigations. There are many diverse patterns of family life, and each of them seems to constitute a learning situation for the child and a potential source for his emotional attitudes, but not in the comparatively rigid sense which Freud postulated. In other words, Freud apparently underestimated the wide variety of family relationships in the establishment of early emotional patterns, and possibly overevaluated the fantasies related to him by his neurotic patients.

That emotional and instinctual tendencies are repressed and act as unconscious motives has been demonstrated repeatedly. These motives find indirect expression by means of the mental mechanisms. Experimental investigation of these mechanisms has not added too much to our understanding of the psychology of emotion. The descriptive categories used are so intimately dependent on strong emotions, motives, and language or verbal report that they do not lend themselves to the usual methods of laboratory research. Despite the lack of experimental verification the descriptive concepts as such have been, and are, of great practical value to everyone who works with abnormal persons. The experience and behavior of the neurotic and psychotic patient can be described in these terms. That the terms serve as a basis for explanations which are useful for prediction and control is only partially true. For example, recognizing that anxiety concerning homosexual desires gives rise to part of the symptoms of paranoid schizophrenia does not enable one to predict the outcome, course, or best therapy for the patient.

Physiology and neurology

When we turn to the more objective aspects of emotional disturbances, there are several major questions which immediately present themselves. Is there any part of the central nervous system which, when injured or altered in function, changes affective experience and expression? Will affective experience and expression be changed by alteration in the function of,

or by injury to, any one or a combination of the endocrine glands, or by injury to another of the bodily organic systems, such as the digestive or respiratory organs? What is the effect of affective experience on endocrine or brain functions? What do the tests of physiological function, such as blood pressure, metabolism, or brain-waves show concerning disturbances in affective experience and expression? In reviewing the evidence relevant to these questions, it should be borne in mind that the emotional display of the abnormal person differs in both its quantity and quality from that of the normal person, and that such differences are often the basis for a judgment of abnormality. It should also be noted that brain operations frequently bring about two general changes in an individual: (*a*) if not too much tissue has been removed or damaged the person (or animal) is more placid, and (*b*) if large amounts of tissue are removed "organic" symptoms are shown. These consist of intellectual losses, motor and sensory defects, and decrease of emotional and volitional control.

Role of the nervous system

The relation between the brain and psychopathology was given in Chapter 23. The specific relation of the brain to emotion may be presented as follows.

Frontal lobes of the cerebral cortex. It will be recalled that psychosurgery is the general term used to describe any of several varieties of surgery done on the brain in an effort to "cure" mental illness and that the most common method is "prefrontal lobotomy" which consists of severing the nervous tracts of the brain extending between the frontal lobes and the thalamus. This operation usually produces marked emotional changes in mental patients. There is a normalizing of emotional life so that depressed patients lose their "psychic pain." They react more vigorously and abruptly. Most depressed patients who were operated on during their melancholia were immediately relieved of their sadness. All of these changes in temperament and emotionality take place without any measurable intellectual gain or loss. In addition it has been found that this operation relieves the morbid quality of persistent or intractable pain in patients who are not mentally ill. All of the ordinary sensory experience of pain remains unaltered but the overwhelming pain of the cancer or tumor has been "removed to the edge of attention" where the patient may overlook or neglect it. It is somehow similar to the loss of "psychic pain" produced by the same operation performed upon mental patients.

Temporal lobes. Klüver and Bucy [14] removed both temporal lobes in

monkeys and observed very marked changes in their emotional and personality structure. Following the operation the animals were tame and friendly and seemed to know no fear. They were also extremely hypersexed, having prolonged periods of sexual excitement.

Hypothalamus. The role of the hypothalamus in emotional experience and expression has long been a matter of clinical observation and neurological experimentation.[18] The hypothalamus constitutes part of the midbrain in which are centered many of the basic biological controls of bodily function. Here one finds the nuclei which regulate body temperature, water balance, respiration, various metabolic functions, expressions of emotion, and certain interrelationships among endocrine functions. Direct experimental stimulation of the hypothalamic region results in rage reactions in cats.

Evidently emotional expression is organized in certain portions of the hypothalamus. If, in animals, this area is disturbed or directly stimulated, a variety of emotional displays may be produced. Numerous instances have been reported of patients who showed disturbances of emotional expression such as forced laughing and crying or facial emotional paralysis (intact voluntary control of facial muscles but no action of these muscles during emotion) where after death, lesions or tumors were found in the hypothalamus. Against this stands the observation that when portions of the hypothalamus are destroyed or removed during psychosurgery there is no change in emotional expression or experience following operation. Nor is there loss of either psychic or intractable pain.

Lashley has summarized the point as follows:

> The supposed evidence that the thalamus adds the affective or emotional character to sensations breaks down completely when subjected to critical analysis. The affective changes resulting from thalamic lesion are restricted to a small group of [visceral] sensations and cannot be interpreted as a general change in affectivity. . . . The pathological changes following thalamic lesions are primarily in the character of the sensations, in intensity, duration, localization, and are therefore not relevant to the problem of affect. . . . The only part of the thalamic theory of emotion which has factual support is the localization of motor centers for emotional expression within the hypothalamus.*

So far as the relation between the brain and emotion is concerned, our present evidence may be summarized as follows: (*a*) Expressions of emotion (but not the experience of emotion) are organized in the hypothalamus. (*b*) The morbid experience of continued, intractable physical and psychic pain is usually removed by psychosurgery which primarily involves the

* K. S. Lashley, "The Thalamus and Emotion," *Psychol. Rev.*, 1938, *45*, 60.

frontal lobes. (*c*) There is no evidence that prolonged, intense emotional stress has any particular effect on the brain.

Autonomic nervous system. This division of the nervous system is constituted by a nerve-net which connects the vegetative organs of the body, such as the heart, liver, and intestines, to the central nervous system. The system functions in the control of glandular secretions, sweating, heart rate, breathing, digestion, elimination, and sex responses. It is divided into two anatomic divisions: the sympathetic and the parasympathetic. Generally speaking, the activity of the sympathetic division is balanced against or antagonistic to that of the parasympathetic. For example, the heart rate is slowed by nervous excitation reaching it over the parasympathetic system, while it is accelerated by excitation from the sympathetic system.

Stimuli which bring about emotional reactions usually act through nervous impulses going out over the autonomic nervous system. According to an hypothesis put forth some years ago by Eppinger and Hess,[8] the depressed type of emotional deviation was attributed to an increase in function of the parasympathetic division, while the excited reactions were due to overfunctioning of the sympathetic division. Much clinical experimentation has been done in an attempt to find whether melancholia and mania are in any way related to continuous dysfunction or irritability of one or the other division of the autonomic nervous system. There is still no evidence at hand which would really substantiate this hypothesis. It may be true that depressed and excited patients show certain respective changes in the balance of their autonomic nervous systems, but such changes cannot be assumed to be the basic cause of their emotional deviations. Rather, the autonomic nervous system acts as a pathway over which the deviations are at least partially maintained. The disorders of emotion are probably due to failures of integration in the brain or in the endocrine glands.

The endocrine glands

The orderly functioning of the body is maintained by the interaction of two systems of control or integration, the nervous system and the blood stream. The chemical products secreted by the endocrine glands go directly into the blood stream. They are carried to all parts of the body and through a variety of chemical processes act to regulate, to facilitate, to inhibit, and to coordinate organic bodily functions. For example, the injection of adrenalin (one of the secretions of the adrenal glands) directly into the body gives rise to an experience which has been termed "cold emotion." The person feels generally tense, anxious, and nervous without specific

localization of the feeling and without having available a situation which might give rise to the experience. To a great extent the endocrine glands interact with each other and, in part, supplement the control of bodily activities which are mediated over the autonomic nervous system.

Thyroid gland. Either an increase or a decrease in the function of the thyroid gland is followed by a change in the emotional status of the individual. If the secretion of the gland is absent or markedly deficient, the result in the child will be the condition known as "cretinism" (see Chapters 17 and 22), and in the adult a syndrome called "myxoedema." These individuals are sluggish, apathetic, and seemingly defective in emotionality.

Where there is an exaggeration of thyroid function (such as the various forms of goiter), the person tends to be nervous, irritable, apprehensive, and, in general, emotionally unstable. If part of the diseased gland is removed, the emotional instability disappears. A similar emotional condition can be brought about by overdoses of thyroid extract. The symptoms apparently constitute a true deviation in emotional experience and expression. The person feels apprehensive, vaguely unhappy, irritable, and anxious. This feeling is often reinforced by the perception of an increased heart rate and respiration. However, such an apprehensive state is not identical with the subjective experiences of an anxiety neurosis or a reactive depression. The symptoms are quite similar, but only a very few instances of acute anxiety conditions are related to thyroid dysfunction.

Adrenal glands. These glands secrete adrenalin and cortin into the blood stream. Adrenalin increases the tremor of voluntary muscles, causes a relaxation of smooth muscle, counteracts fatigue, alters blood distribution and blood pressure, relaxes the bronchioles, causes the liver to release sugar (glycogen), and stimulates the spleen to release red blood corpuscles into the blood stream. These physiological changes brought about by adrenalin are emergency reactions which are thought to prepare the individual to meet a situation demanding quick and prolonged discharge of energy. The reactions themselves do not produce a specific pattern for any one of the emotional states, but they furnish a background for emotional responses.

Adrenalin is secreted by the interior or medullary portion of the adrenal gland and cortin by the outer or cortical portion. Loss of the cortical portion of the gland is followed by death while loss of the medullary portion is not. Cortin acts in the regulation of kidney function, in the regulation of sodium and potassium metabolism, and in the metabolism of proteins and carbohydrates. Absence or deficiency in cortin gives rise to asthenia or lack of energy but not to the changes in emotional experience or expression which are produced by adrenalin.[25]

The gonads. The gonads or sex glands are known to be directly related to sexual desire and sex feelings. Psychological studies of males have shown that there is a gradual, but definite, loss in sex desire and potency following castration. Administration of male sex hormone leads to a reestablishment of sex desire and sex outlet.[26] This was shown, not only by the overt report and behavior of the individuals, but also by dreams and other material brought out by the psychoanalytic method. Usually the emotional state following the removal of the ovaries is characterized by nervousness, depression, and crying spells. The unpleasant emotional states following ovariectomy and menopause are usually relieved by the administration of the female sex hormones.[2]

In some women an emotional state of premenstrual tension is quite marked. This state is one of anxiety, irritability, nervousness, and restlessness. The condition is relieved by the administration of the proper sex hormones. Premenstrual tension has been compared to a "slight case of involutional melancholia." In some of the milder psychotic states of involutional melancholia a remission of psychotic symptoms has been brought about by use of sex hormones. Other than these instances one cannot say that the various deviations in sexuality which occur in psychotic and neurotic states are directly related to the hormone balance or to the secretions of the gonads. There is no good evidence that the administration of large doses of male or female sex hormones leads to any particular change in the sex life or emotionality of the normal person.

Pituitary gland. This gland, located at the base of the brain in close approximation to the hypothalamus, is the controlling or master gland of internal secretion. Its secretions are essential in maintaining the activities and interrelationships of all the other endocrine glands. Pituitary dysfunction leads to a disturbance in both the emotional life and in the general personality of the individual. These changes in emotionality are not thought to be specific to the gland itself, but rather are the result of a disturbed balance among the other glands. Most of the recognized deficiencies in pituitary function are associated with inadequate development of the gonads, and hence they produce sexual immaturity. Hyperfunction of the gland has a variety of effects. Some of them are irritability and apprehensiveness of the sort shown by goiterous patients.

General.[2] In trying to unravel the relationship which exists between emotional responses and the internal secretions of the endocrine glands, certain guiding principles should be borne in mind. (*a*) None of the responses thus far investigated have been found to depend upon one and only one endocrine secretion or hormone. (*b*) Behavior and subjective experi-

ence depend upon several mechanisms in relation to hormone control rather than to any single hormone. (*c*) So far investigation has failed to determine the relationship which in all probability exists between the genetic constitution, the action of the nervous system, and the chemical changes brought about by the secretions of the endocrine glands.

There is ample clinical and experimental evidence which demonstrates that either hypofunction or hyperfunction of the glands of internal secretion produce emotional disorders. However, there is no evidence that the major emotional disturbances shown either in psychotic or neurotic patients are to be attributed to the dysfunction of any one gland or to a disturbance in the functional balance among the glands. It is possible that future investigation will demonstrate a basic relationship between such conditions as manic-depressive psychosis or involutional melancholia and certain combinations of the actions of the glands of internal secretion. However, with the methods now available it is not possible to demonstrate any specific relationship. In general, it is believed that the background of mood against which emotional displays take place is probably a secondary result of the balance or lack of balance of endocrine function.

Nutritional status

Reduction of the amount of food intake to approximately half of the normal intake (from 3,500 to 1,570 calories per day) brought about distinct emotional changes in thirty-six volunteer experimental subjects.[23] All developed a "semistarvation neurosis" which receded when they were returned to a full diet (Chapter 7). The nature of the neurotic picture varied. In some the disturbance bordered on psychosis, in others it was a personality collapse. Still others went through the experiment with relatively minor emotional disturbances.

Of equal importance to the absolute insufficiency of foodstuff is the shortage of essential vitamins. A thorough demonstration of this point was carried out experimentally.[3] After a 12-week control period on a diet of normal caloric value five young men were for 35 weeks kept on a diet of approximately the same caloric value which was sharply reduced in protein and vitamin B-complex. Two men served as controls by living on the same diet supplemented with vitamins. All subjects were tested at repeated intervals by physiological, psychomotor, and psychological methods. Increasingly, during the first 15 weeks on vitamin reduced diet, the five men complained of lassitude, insomnia, nausea, and vague pains. Their scores on the Minnesota Multiphasic Personality Inventory showed a distinct change

toward hysteria, depression, and hypochondriasis. The two control subjects showed none of the subjective, personality, psychomotor, or physiological changes shown by the five experimental subjects. Restoration of vitamins to the diet brought about a rapid subsiding of all physical and personality changes. It may be concluded that normal emotional status depends on an ample balanced diet which includes a sufficient amount of vitamin B-complex.

Organic systems of the body

The psychopathology associated with physical disease and physical handicap was considered in earlier chapters. The possible relationship which may exist between the pathology of some organic system and a deviation in experience or expression of emotion deserves mention. We know that when we are frightened or angry we have an increase in heart rate and in breathing. On the other hand, if a person is short of breath, as in asthma, his emotional experience is not one of anger, but of fearful anxiety due to a feeling of suffocation. Most disturbances of bodily organs are accompanied by emotional reactions which are considered more or less normal. For example, any person suffering from angina or intestinal cramps is expected to be irritable and apprehensive. Only if his irritation or apprehensiveness continues over long periods of time and in the absence of any additional stimulation would his emotional disturbance be called "abnormal."

The relationship between emotion and physical disease constitutes much of the subject matter of psychosomatic medicine. There is good clinical evidence that persistent fear, anger, frustration, irritation, dissatisfaction, and the like will be followed in some persons by one or another physical ailment. There is further evidence that solution of the emotional problem or removal of the stimulus giving rise to the emotion will lead to an alleviation or disappearance of the physical illness. This is so true that most good physicians not only make a physical examination of their patients but inquire into their emotional problems which may be associated with the physical symptoms.

Many physicians are of the opinion that having listened to the physical complaints and symptoms and observed the general physical constitution of an individual, they can more often than not predict the general nature of the emotional complaints and usually the situation giving rise to the emotional disturbance.

While the evidence with respect to the relationship between physical disease and emotionality seems fairly clear, the relationship between emo-

tion and mental disease is not. As previous chapters have shown, many of the psychoses and neuroses have relatively clear-cut and definable emotional components, but neither psychosis nor neurosis is regularly associated with any known dysfunction of a particular organic system of the body.

Physical indicators or measures of emotionality

In discussing the symptoms of hysteria (Chapter 6) it was pointed out that in hysteria the particular symptom or part of the body affected might be thought to be determined either by associated context, physical status, or symbolic value. This hypothesis has been carried over and used to explain in part the emotional component in physical disease. The theory would hold that unconscious motives or emotional drives reveal themselves in some symbolic fashion which involves interference with the orderly function of some one or more of the bodily organs. If this theory is correct, appropriate indicators of such function should show some relationship to one or another mental mechanism. This would be particularly true in regard to the mechanism of hysterical *conversion,* since such unconscious emotions are thought to express themselves in the malfunctioning of various organs. Even before this theory was advanced, many attempts had been made to determine whether or not disturbed emotional states persisting over a period of time did bring about disordered bodily functions. For such reasons it is of interest to review briefly the various psychosomatic test findings which have been obtained in emotionally disturbed persons.

Cardiovascular indicators. These indicators are changes in blood pressure, changes in blood volume, changes in pulse rate, and changes in the electrical response of the heart itself. It is common knowledge that in everyday life, as well as under experimental conditions, pronounced emotional disturbance is attended by changes in all of these cardiovascular indicators. The disturbances are of a generalized nature and not specific to either variety of emotion or of mental abnormality. Theron [27] made use of the blood volume changes of the finger measured by means of a plethysmograph in different test situations with fifty normal persons. Emotional stability was indicated by scores obtained on the Bell Personality Inventory. The measurements and scores were treated by the statistical method of factor analysis. From this analysis he concluded that he could identify three basic factors, (*a*) emotional stability, (*b*) emotional tension, and (*c*) a specific factor related to the conditions of the experiment. Van der Merwe [28] applied the same method to psychoneurotic patients showing either predominant anxiety symptoms or hysterical symptoms. The hysterical patients

showed evidence of a greater emotional tension factor than did normals, while the anxiety cases showed less of the factor than did normals. Both groups of hysterical and anxiety patients exceeded the normals in emotional lability.

In spite of findings like those of Theron and of Van der Merwe no consistent vasomotor change or measure has been isolated in the states of profound emotional displays observed in mania, depression, or acute anxiety. The pulse rate and blood pressure of the depressed patient are usually found to be somewhat below normal. However, these individuals tend to be very quiet and sedentary, so that the response may only be a reflection of the lack of physical activity. Many manic patients show symptoms of cardiac stress, but this finding is usually interpreted in terms of overactivity and fatigue. Without observing the total behavior of a mental patient, it is impossible to tell from the physiological indicators what the particular emotional content of his psychosis might be.

Respiration. Studies of the breathing curve have been made in practically all groups of psychopathological patients.[7] Generally speaking, the depressed patient shows a shallow type of breathing; the anxious patient, an irregular breathing curve; and the excited patient, a well-marked curve indicating considerable respiratory activity. Since respiration is directly related to verbal expression, a fairly close relationship might be expected to exist between the verbal expressions of disordered emotional experience and the breathing curves. For example, the curve of anxious patients is frequently distinguished by records of sighs, gasps, periods of shallow breathing, and other irregularities. In a sense, it is as if the patient in his anxiety were whispering to himself, and this whispering is reflected in the breathing curve. Unfortunately, no type of curve is directly related to any particular variety of emotional experience, even in normal individuals who exhibit usual and well-defined emotional reactions. If one knows a patient and is familiar with the nature of his emotional troubles, it is sometimes easy to "explain" the characteristics of his breathing curve in terms of possible associations between its irregularities and the particular mental state. However, if one has only a tracing of the respiration and no other knowledge of the patient's symptoms, the diagnosis of the mental state on the basis of such a tracing can be but little better than chance.

Blood chemistry. As mentioned previously, increased activity of the sympathetic division of the autonomic nervous system or of the adrenal glands acts to release sugar into the blood stream. If emotional excitement increases blood sugar, we should be able to measure, after a fashion, the degree of emotional excitement in terms of the level of blood sugar. White-

horn [30] reported the findings of a blood-sugar study of 958 psychotic patients, 32 of whom were extremely excited at the time the blood sample was obtained. According to his observations, emotional excitement rarely, if ever, produced a rise in the blood-sugar level. The range of variation in the blood-sugar level of the mental patients did not exceed that of normal individuals of the same age distribution.

If blood samples are taken from mental patients or normal persons while they are experiencing specific emotions such as marked anxiety, fear, anger, depression, elation, or sex excitement, the blood can be shown to contain factors similar in action to adrenalin or acetylcholine (a substance having, in general, the opposite effect on bodily function from that of adrenalin). Usually anxiety, resentment, and anger are associated with the finding of the adrenalin-like factor, while tension and fear show the acetylcholine-like factor.[5]

Basal metabolic rate. The metabolic rate is an expression of the way in which the body utilizes sugar and eliminates carbon dioxide. It is markedly increased in hyperthyroid conditions and decreased in hypothyroidism. A marked increase in basal metabolism accompanies and follows physical exercise. The rate is at its basal level after sleeping and fasting for eight or ten hours. Since depressed patients are inactive and manic patients extremely overactive, the two contrasting states should be expected to be distinguished by a definite difference in the respective metabolic rates. Actually, there is but little difference in the basal rate in the two states.

It will be recalled that some soldiers after combat develop symptoms which have been called neurocirculatory asthenia, soldier's heart, combat exhaustion, or effort syndrome. Frequently the outstanding symptom is weakness and fatigue with but little or no anxiety. Hence some doubt has existed as to whether effort syndrome was essentially an anxiety neurosis. A comparison [12] was made of twenty normal soldiers, ten clear-cut anxiety patients, and ten effort syndrome patients (without anxiety symptoms) with regard to their physiological and metabolic response to moderate, measurable physical exercise. Both the effort syndrome and anxiety patients had significantly poorer exercise responses than did the normals. There were no real differences in efficiency between the effort syndrome and the anxiety patients. Presumably the effort syndrome is a specialized anxiety or "effort phobia."

Electroencephalogram. The electroencephalographic record of apathetic schizophrenic patients and certain (but not all) depressed patients reveals slow electrical waves of the order of one or two cycles per second, in addition to all of the more rapid wave forms seen in normal individuals. So far,

no one has been able to establish any direct relationship between emotional experience or expression and the brain-wave picture. Brain-waves have been taken directly by placing an electrode on the base of the hypothalamus via the upper nasal passage. In this procedure the slow waves from the hypothalamus, thought to be associated with emotional experience, have been found to precede the slow waves obtained from the brain cortex by a few thousandths of a second. Hence, they have been interpreted as "the cortical signal of some conscious correlate of the emotional response." [10]

In an analysis [4] of the EEG of one hundred psychoneurotic patients compared with those of five hundred normals it was found that the incidence of beta waves (18 or more per second) was significantly higher among neurotics. This difference was mainly due to the faster dominant wave frequencies found in the subgroup of anxiety neurosis. The predominance of the higher frequencies is thought to be related to the greater concentration of the adrenalin-like factor in the blood which disturbs the rate of oxygen consumption of the brain.

Psychogalvanic reflex. If the human body is directly connected to a sensitive galvanometer, or connected together with a Wheatstone bridge, a small battery, and a galvanometer, changes in the electrical potential of the body, or of the electrical resistance of the body, respectively, may be measured. If, while the body is so connected, a sharp, sudden stimulus occurs, such as a loud sound or a pinprick, there will be a deflection of the galvanometer showing that the electrical potential or the resistance of the body has rapidly changed. This change is called the "psychogalvanic reflex."

Landis and Hunt [18] in 1935 reported a study which was directed specifically at the conscious correlates of this reflex. With both normal persons and psychiatric patients they used a wide variety of stimuli, including part of Jung's diagnostic word-association list. They obtained careful and adequate introspections following each stimulus. There was clear and unmistakable evidence that the psychogalvanic reflex might occur after any one of a very wide variety of stimuli or situations. The reflex was found to follow any word in the word-association list, regardless of whether or not that word was accompanied by any other report of emotion. It had a tendency to occur more frequently when either tension or startle was reported as the conscious correlate. It sometimes occurred *spontaneously*; that is, with no known stimulus or consciously reported mental concomitant. Although the reflex seemed a fairly adequate indicator of the changes of direction of mental activity, it was not a perfect or direct measure of these changes. So far as the findings obtained from psychiatric patients could be compared with those of the normals, there was a tendency for the type of

conscious state reported to be associated with the particular psychopathology of the individual. In a very general way the psychogalvanic reflex was found to be an indicator of emotional reactions of the sudden or startling variety, of changes in the direction of mental activity, and of activity of the autonomic nervous system.

Summary

The clarification of the basic factors involved in the psychopathology of emotion is a problem of both psychology and physiology. Various methods of studying the subjective nature of emotion have been devised and many of them have added distinctly to our understanding. Interviews, autobiographies, and psychoanalytic methods provide basic material from which further experiments may proceed. The questionnaire method, if tailored to the specific problem under investigation, is productive. In brief, the methods of experimental psychology, when properly applied to these problems, have been fruitful.

The experimental physiological psychology of emotion, normal or abnormal, has brought out many interesting facts. It has been difficult, however, to place these observations in an integrated whole which can be directly related to either clinical material or the findings of subjective psychology. The difficulty lies in the fact that the subjective experience of emotion is nonspecific and "unanchored." There is no way to be sure that the experience of fear is the same in two different individuals or in the same individual on different occasions. The objective experiments show clearly that there is some communality in emotional experience and a fair amount of variability. Almost all of the physiological indicators of emotion are of clinical value. No one is of specific value. The more indicators available and pointing in the same direction, the more understanding we may have of the objective and subjective factors operating in the psychopathological person.

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SECTION FOUR
PSYCHOPATHOLOGY

Chapter 27 *Impairment of Intellect*

THE TIME-HONORED DIVISIONS OF MIND HAVE BEEN COGNITION, CONATION, and emotion. The divisions proposed by Freud were Id, Superego, and Ego. Generally speaking, Ego, cognition, and intellect are used as synonymous terms. Recently the three terms have been included in the concept, "Self." The common-sense way of thinking of one's own everyday normal behavior goes something as follows. "I can control my thinking. My emotions sometimes overwhelm me but usually I have good self-control. I am sometimes undecided but I can make up my mind." We regularly assume that there is an "I," an "Ego," a "Self," that constitutes the essence of our individuality. We attribute a self capable of some degree of understanding, not only to every other human being, but to all varieties of higher forms of living organisms. In common-sense (and legal) thinking the main difference between sanity and insanity is a derangement of intellect (self). It is commonly assumed that disorders of emotion and volition would not occur if there were good intellectual control. Evidence casting doubt on this assumption has appeared in almost every chapter of this book. Indeed, a leading reason why abnormal psychology seems not too comprehensible is that we tend to cling to explanations in terms of intellectual derangement, which explanations are so frequently found to be unsatisfactory and unproductive.

That there is some degree of interference with intellectual efficiency in practically every instance of psychopathology is unquestioned. When extreme, this loss of mental ability is called deterioration or dementia. The term *dementia* is usually applied to those conditions which show a progressive and irrevocable change associated with organic brain damage, while the term *deterioration* is more often applied to those cases which show progressive mental loss without assumption as to the cause or permanency

of the change. In this chapter the terms dementia and deterioration will be used interchangeably without reference to the basis of the mental loss.

Measurement of mental deterioration

Mental deterioration varies in degree from barely perceptible changes to gross defects in all phases of conscious life. In order to determine both the amount and quality of mental deterioration during mental illness, or the residual loss (if any) after recovery from mental illness or brain injury, the most accurate method would be to compare such an individual's intellectual performance before and after illness. Two difficulties attend this procedure. First, although mental tests have been widely used since 1920 there has been no systematic preservation of individual records. Second, there is a decline in intellectual ability, as shown by intelligence tests, after the age of 30. For example, if one retested a patient at age 45 on the same form of the Stanford-Binet which he took at age 15 it would be difficult to determine, without considerable additional research, how much of the change was due to normal decline associated with aging and how much was due to the interference or impairment occasioned by the mental illness. Hence, our present information is drawn from a variety of methods which approach the problem indirectly.

These methods are (*a*) group comparisons of mentally ill persons with persons who do not have mental illness, (*b*) scatter in performance on mental tests, (*c*) differential loss in efficiency, and (*d*) changes in the pattern of performance on standardized tests.

Group comparisons

Since standardized intelligence tests are among the best tools of a clinical psychologist, they are regularly used both with individual patients and with the various groups and subgroups of abnormal persons. This testing has provided a mass of comparative information concerning the performance of the abnormal and the normal. In order to work out an evaluation of the group or individual scores, abnormal subjects have been compared to the test norms or, in some investigations, to matched control groups. The results from different studies are not always in agreement because of sampling errors, variations in such factors as age and type of patients available for study, the inclusion or exclusion of results obtained from uncooperative individuals, and standards of diagnosis used.

When the various studies of the intelligence of mental patients belonging to different diagnostic categories are assembled and analyzed, a comparative

estimate concerning the degree of intellectual impairment may be formed.[18] While it is recognized that no one of the figures is in any sense absolute and that a wide variation exists around each figure, the following comparison of groups may be made in terms of the median mental age in months as obtained on such standardized tests as the Stanford-Binet, Yerkes Point Scale, or the Wechsler-Bellevue.

Senile Psychosis, Medium Deterioration	120 months
Psychosis with Alcoholism	129
General Paresis, Medium Deterioration	132
Hebephrenic Dementia Praecox	138
Hysteria	143
Catatonic Dementia Praecox	144
Psychoneuroses, all types combined	144
Psychopathic Personality	147
Paranoid Dementia Praecox	148
Manic-Depressive Psychosis	148
Paranoia	160
Normal Adult White Population	160

These figures supply a notion of the relative impairment of patients who are sufficiently cooperative to attempt a mental test. Many mental hospital patients are confused, retarded, inattentive, or completely uncooperative so that no representative measurement can be obtained. For example, Roe and Shakow [26] went over the Binet test results obtained from a mixed group of 827 mental hospital patients and concluded that at least one third of the measurements were unrepresentative of the patients' mental ability at the time the test was given.

A further difficulty lies in the fact that many studies of deterioration have used psychiatrists' ratings of deterioration as the criterion of whether or not the test results were considered to be representative. These ratings are not very satisfactory since the standards used vary widely among different psychiatrists. One will give most weight to social behavior and personal habit patterns; another, to the emotional life; and still another, to the patient's general alertness and responsiveness.

In order to meet these and other problems raised by the comparative use of tests, clinical psychologists have tried to find characteristics in the immediate test performance (that is, tests given during the mental illness) which would be indicative of both mental deterioration and the original level of mental ability.

Scatter

The range of successful performance on the subtests at the different mental-age levels on the Stanford-Binet test has been called "scatter." The

emphasis on scatter in the performance of psychotic patients grew out of the theory that dementia consists of a pattern of isolated defects in specific functions. The spottiness or irregularity of the test performance was assumed to be characteristic of deterioration. The results of many of the older investigations indicated that psychotic patients (both of the functional and organic types) showed more scatter than did normal children. However, Kendig and Richmond [19] found that the scatter is little or no greater among psychotics than it is among normal adults. It was also established [16] that mental-age level correlates with the amount of scatter and that when this factor is held constant, the difference in scatter between normal and abnormal adults tends to disappear. In another study [9] it was shown that the scatter did not differ significantly among the various diagnostic groups. Such findings indicate that scatter is neither a measure nor indicator of deterioration.

Differential loss in efficiency

Some thirty years ago it was observed that certain parts of the intelligence test procedure seemed to be more resistant to deterioration than others. Babcock [2] utilized the observation that the vocabulary (ability to use or define words) remains relatively unaffected among deteriorated patients while other performances tend to be impaired. She took the vocabulary level on a standardized test as an approximation of the subject's previous level of intelligence. The difference between this level and the weighted average of the general performance levels on a battery of tests (including measures of the speed of response in the use of old associations, recognition tests, and new learning material) she termed an *index of mental efficiency*. The wider the discrepancy between vocabulary and performance level on these other tests, the greater is the amount of mental deterioration. This index is, in effect, a numerical expression of the difference between the stable remaining functions and the unstable or disorganized functions. Application of this battery of tests has shown that groups of patients suffering from general paresis, cerebral arteriosclerosis, and epilepsy have low mental efficiency indices. Schizophrenic groups do not show as great a loss in mental efficiency as is found in the organic psychoses.

Using a comparison of the mental ability to grasp a common relationship between words as a measure of the general ability to form concepts, and the ability to define words as a measure of vocabulary function, Shipley [27] devised another measure of intellectual impairment. Mental impairment is measured in terms of the ratio of the concept score (a rapidly disintegrating function) to the vocabulary score (a relatively stable function). This ratio,

or *conceptual quotient,* provides a measure of the degree of mental impairment.

Difficulties arise when one assumes too much precision or puts too much weight on either of these indices. The difficulties spring in part from the fact that the vocabulary function is not a simple one and that it also deteriorates. It has been demonstrated in epileptic patients [7] and in senile patients [1] that all measures of vocabulary function show a consistent and progressive reduction in score associated with increased degrees of mental deterioration. Furthermore, it has been shown that the deteriorated patient's apparently superior performance on vocabulary tests is in part due to the fact that no strict time limit is used, with the result that a prolonged performance is given an acceptable score, whereas in the other part of the deterioration tests stricter time limits are imposed.

Both the Babcock method and the Shipley method were advances in the field of experimental abnormal psychology. Neither is perfect nor appropriate for the study of every type of case. For example, they should be applied only when it is known that the previous level of intelligence of the patient was near average, when there is no language handicap, when the dementia is not too extensive, and when the patient is less than sixty years old.

Changes in the pattern of performance

The development of the Wechsler-Bellevue [32] test of adult intelligence which was standardized for adult age groups with due allowance for the decline in intellectual ability with increasing age has made it possible to work out patterns of changes which are partially representative of both the degree and variety of mental deterioration. It has been found that the subtests which show little decline as one grows older are information, comprehension, object assembly, picture completion, and vocabulary. Subtests which do not hold up are digits forward and backward, arithmetic reasoning, digit-symbol test, picture arrangement, block design, and similarities. The "hold" scores and the "don't hold" scores are combined by a formula which provides a deterioration index.

Various other ways of manipulating the scores of the subtests making up the entire Wechsler-Bellevue scale have been devised.[22] The scale does provide a method of appraising mental deterioration which is a useful adjunct in arriving at a diagnosis in some psychopathological states. It is of value in assisting in differentiating organic from functional conditions. Due to many factors which cannot be adequately controlled it is impossible to

make an absolute pattern of scoring which will provide a clear basis for diagnosis in all individual cases.

Varieties of mental deterioration

Old age

If we live long enough, we will suffer both physical and mental deterioration. These gradual losses in intellectual ability that accompany increased age are termed *normal mental deterioration.* By seventy, practically every individual shows general and specific quantitative losses in those abilities which he had when he was twenty. Most of these changes occur so gradually that neither the aged person himself nor those around him realize that they have been taking place. When the loss of mental efficiency is pronounced, the condition is called "senility." When these intellectual changes are accompanied by gross changes in personality and emotional life the condition is termed "senile dementia."

Psychoses of known organic origin

The decline in mental efficiency in normal old people is qualitatively similar to that found in most organic brain disease. When gross organic brain disease occurs in the aged (such as cerebral arteriosclerosis), it is impossible to distinguish between the mental components due to the aging process and those attributable to the effect of the arteriosclerotic lesions.

Patients showing a moderate amount of senile dementia have difficulty with tests which require breaking away from old mental habits and adapting to unfamiliar procedures, with tests of recent logical memory, of judgment, planning and reasoning, and with tests which involve difficult or lengthy instructions. Performance is least affected on tests of visual recognition, old mental habits, and simple motor tasks.[13] When the dementia becomes more advanced the memory span for recently acquired material shows marked impairment. Other tests may or may not show decreased efficiency. There is an increasing difficulty in getting the more deteriorated patients to shift attention in any one of the test situations. Having assumed a mental set the aged patient seems tied to it (stimulus-bound).[14]

The psychological performance of patients with toxic psychoses or with severe postconcussion syndrome is characterized by confusion and disorientation. Such patients show gross disturbances in simple perception and are incapable or inefficient in complex mental functions. In the acute stages they offer little opportunity for psychological study because they usually

are so incapacitated that there are not enough intellectual assets left with which to work. When they recover from this acute state, most individuals regain their previous level of mental function. About 15 to 20 per cent of cases of head injury are followed by some persisting intellectual impairment together with an increase in neurotic symptoms.[25] The most characteristic changes in test performances are found in arithmetic reasoning and in the similarities test ("In what way are the following alike: air-water"). The examination of such patients with procedures designed to separate the impairment symptoms from the neurotic complaints [21] showed that the rates of learning and of doing arithmetic problems are related to intellectual dysfunction while losses in creative thinking, social judgment, emotional control, and logical analysis are part of the difficulties coming from the neurosis or emotional disorder. Brain damage caused either by injury, tumorous growth, or psychosurgery is frequently attended by immediate impairment of intellect which is usually followed by gradual improvement and full recovery of performance. The age of the patient, the extent, and (to some degree) the location of the brain damage determine how much transient impairment will appear and how long it will persist (Chapter 23).

Epilepsy

Lennox [20] found among a large group of non-institutionalized epileptic patients that 26 per cent of the patients with symptomatic epilepsy and 10 per cent of those with essential epilepsy were definitely deteriorated. If the patients who were mentally deficient from birth were eliminated from consideration then the percentages were 12 and 6 respectively. The causes or basis of the deterioration were heredity, brain injury, medication, psychological handicaps, and seizures themselves. There is no clear evidence as to whether or not there is a specific pattern of intellectual impairment in epileptic deterioration. In one study [12] of institutionalized psychotic epileptics it was reported that such patients had the ability to form new associations but could not retain them; remote memory was found to be intact but recent memory was deficient; the patients were oriented but unwilling to put forth effort and attention; and their comprehension of new ideas was slow.

Psychoneuroses

Some neurotic patients do not function intellectually at the level which seems appropriate to their educational and experiential background. On the basis of tests given to American soliders during World War I, Holling-

worth [17] found that except for the psychasthenic group (fatigue neurosis) all classifications of psychoneurosis fell definitely below the mental level of the average soldier. During World War II Eysenck [8] studied the same varieties of patients and found that neurotics tended to be slightly below average in intelligence, with the hysterics inferior to the anxiety cases. The inferiority was not a function of speed of reaction on the test but was related to the organization of the mental processes involved. The differences were not large and were probably due to the different effect of incentives on efficiency of performance.

Dementia praecox

For years the problem of apparent deterioration, as seen in dementia praecox, has stimulated research investigators so that there is an abundance of data available on the subject. It is known that the dementias attendant on organic brain changes are in some respects similar to, and in other respects quite different from, the disorganization shown by dementia praecox patients. In most schizophrenic cases, conceptual thinking and the ability to retain new impressions are impaired. The schizophrenic performance is poor on tests requiring interpretation of fables, the detection of absurdities, and general social comprehension. Tests requiring practical judgment and directional control of thought are frequently failed.

There are various factors which influence the psychological performance of schizophrenics. They are responsive to their environment only in a superficial way, and are frequently preoccupied with their own thoughts, feelings, and beliefs to the exclusion of outside stimulation. Both the association tests and the Rorschach procedure reflect the frequency of unusual and individual responses, indicating something of the degree of this isolation. The patient's lack of adaptiveness and his inadequacy in the manipulation of environmental situations are shown by the superficial, undirected nature of the tasks which he chooses, his nonresumption of tasks which are interrupted, and his apparent inability to accept substitute modes of activity. Even when the composite scores of intellectual function indicate little or no impairment, the psychosis does interfere with the balance among mental functions, the ability to form and handle concepts, and the ability to analyze situations of a practical, social nature.

In the course of schizophrenic deterioration, the first apparent loss is the inability to function mentally as rapidly or with such persistence as before the onset of the illness. Later, disturbances in conceptual thinking, associative thinking, immediate recall, and speed of movement in self-

initiated activities appear. The last functions to be affected are vocabulary, the recall of overlearned material of long standing, and the capacity for simple organization. Actually, in many cases there is little or no evidence of a true loss; rather, it is a mental disorganization. In contrast, the deterioration of senility shows that conceptual thinking is relatively resistant to the deterioration process.

The distinction between the phenomena of deterioration in senile patients and the disorganization of schizophrenic patients is shown clearly in the process of generalization and concept formation.[6] Changes in generalizing ability occur in dementia praecox more regularly than they do in other psychotic states. Schizophrenics may show disturbance in these higher functions even when little or no mental impairment is found in other types of tests. This disorder in generalization warrants special attention.

Higher intellectual processes

It is plain that the disorders of intellect show themselves in no simple or regular fashion in psychopathological states. Generally it is not a question of what process is ineffective but rather how various processes fail to integrate. In many instances the failures show themselves as disorders in concept formation. Ability to generalize, to abstract, to isolate, to shift, to comprehend similarities and differences, and to employ symbols are impaired, so leading to difficulties in concept formation.

The process of generalization—the ability to think abstractly—is one which matures gradually in the child. It has been repeatedly shown that the ability to see differences matures before the ability to see similarities. On the revised Stanford-Binet [29] scale of intelligence, it is expected that a six-year-old child should be able to state the difference between a bird and a dog, or between wood and glass. At the age of eight he should be able to state in what way bread and meat, or a window and a door, are alike. At age eleven he should be able to generalize the similarity among a sparrow, a cow, and a snake. The average adult is expected to state the essential difference between work and play, or between ability and achievement; while the superior adult should be able to derive the essential similarity between melting and burning, or between an egg and a seed. The responses of both mentally retarded children and deteriorated patients usually refer to differences rather than similarities, no matter what instructions are given.

The analysis of intelligence test results furnished the first objective indication that generalizing ability is impaired in schizophrenics. In an item analysis of the Stanford-Binet performance of two hundred dementia

praecox patients, Wentworth [33] in 1924 showed that they had their greatest difficulty in tests based on ideational judgment, the ability to generalize, and the understanding of motives underlying social acts. Other tests given by Rawlings [24] to a group of paranoid dementia praecox patients revealed that there was an impairment of the processes of comparison, abstraction, and generalization. The nature of their failures was seen in the tendency to deal with the concrete rather than the abstract when the latter was indicated.

From the study of brain injury cases, Goldstein [10] developed an explanation of the changes that appear following such injury. He viewed the changes as due to an impairment in the ability to think abstractly. This impairment was conceived to be a basic change involving all capacity levels of the total personality. He demonstrated the change by the use of many different types of test material. According to Goldstein, the concrete attitude is one in which the individual is reacting to the immediate stimulus—situation, or object—and is controlled by his immediate sense impressions. In the abstract attitude, he goes beyond the specific aspects of sense impressions and responds to the individual thing as representative of a category or class. He is no longer tied to the immediate object, but reacts to it in a representational way. The abstract attitude is necessary if the person is to be able to assume a mental set voluntarily, to shift voluntarily from one aspect of the situation to another, to generalize or abstract common properties of various objects, and to respond in terms of several aspects of a situation at the same time.

Numerous tests have been developed to determine whether a patient is responding in a concrete or an abstract manner.[11] Among the more productive of these tests are those which require the patient to sort objects that are placed before him. Objects of different use, form, material, and color are included in the group. The patient is required to "put those together that seem to belong together." The way in which he classifies the objects indicates the particular aspects to which he is responding. If he groups them on the basis of some general category, this is taken as an indication that he considers the objects as representative of a class and is capable of assuming an abstract attitude. If he brings together only identical objects or those which are very nearly identical, or which belong together only in reference to some specific use or concrete situation, he is governed more by their specific attributes than by their representational meaning. To illustrate [5] the generalizing type of response, a person might form a category of "tools" in which a hammer, a screw driver, and a saw of different sizes were included. The specific type of response is shown by the person who selected only one hammer and one nail, and included no more in his group, saying

that one hammer would be sufficient to drive the nail into the wall. Another example of this specific attitude was shown by a patient who, instead of putting a pipe, cigar, cigarettes, matchbox, and single matches together as "smoking materials," picked only the cigar and one match and said, "After I have my dinner I smoke a cigar and I use a match to light it." He could not see the basis for the broader type of grouping, even when the examiner demonstrated it to him.

These sorting test procedures have been [4, 5] applied to schizophrenic patients whose performance indicated that they were responding on a more concrete level of performance than were normals. Some dementia praecox patients are unable to assume the abstract attitude required by the test. They also see odd and peculiar relationships between the objects. Frequently they verbalize some reason for this formation of a group, showing that they are really responding to the task set before them, but in a way different from that in which the normal would respond. Sometimes their basis of sorting is not understandable, either from observation of the objects put together or belonging together, or from their verbalizations of why they group them in a particular way. These peculiar types of sorting were not found in a group of feeble-minded subjects of roughly the same mental age, although they too are incapable of abstract types of performance.

Vigotsky [31] devised a complex and difficult form of sorting test to study the development of conceptual thinking. Twenty-two wooden blocks, varying in color, shape, height, size, and in the particular nonsense syllable printed on the block, are presented to the subject who is required to arrange them into groups that are, in some way, alike. The groupings can be varied from simple to complex. His study of schizophrenics demonstrated that one of the most important changes in their thought processes is a disturbance or impairment in the function of concept formation. Their performance on this sorting test indicated, he said, that there has been a transition to the more "primitive" forms of thought. Later investigators [15] using this method found a reduction in conceptual thinking, in the sense of an inability to grasp the idea of classification according to certain principles. Many patients used principles of classification different from those adopted by the average person. For example, one schizophrenic put the most dissimilar blocks together, stating that they belonged together because they were all policemen. At times a schizophrenic patient will show endless hesitancy and vacillation among various aspects of such test material, seemingly because he is unable to restrict his attention to one principle of the given material and to neglect the others.

In the place of blocks, Rashkis [23] used words and numbers in a sorting

test fashion. The subject was asked to "put where they belong" on a checkerboard words (or numbers) printed on square bits of cardboard. If correctly placed the words constituted a conceptual scheme (job-need-money-working-industry) while the numbers added up to a given sum $(4 + 2 = 6)$. When the procedure was tried out with groups of deteriorated schizophrenics, paretics, and senile dementia patients who had had approximately the same amount of common school education certain differences appeared. The schizophrenics did the test in a coordinated fashion which they could "explain." The paretics did it in an uncoordinated manner and offered no explanations. The seniles also were uncoordinated in performance but offered excuses or apologies for the way they went about it. The term coordination was used to designate the organization of simultaneous activities in accordance with some criterion. The criterion used by the schizophrenic patient was often unusual or different from that which a normal adult might be expected to employ, but there was a criterion. The paretics gave no evidence of having a criterion or of realizing the lack of one. The seniles realized their lack. This experiment demonstrated that the kind of deterioration shown in paresis and senility is distinct from schizophrenic disorganization.

The disorders of simple verbal logic in schizophrenia and senile dementia were investigated by Cameron[6] in relation to the way in which logical thought develops in the normal child. The starting point for his studies was the question of whether or not the disorganized logic of psychotic patients regresses to a form characteristic of the child. In other words, is there a true regression in psychotic thinking and reasoning? He presented his subjects with fragments of sentences which they were asked to complete. For example, "I am in the hospital because . . ." Typical of the normal child's response was, "I was sick," or "I have a broken leg." The senile's responses were, "I hurt myself," or "I fell down just before I came here." Schizophrenics replied, "I wasn't working," "I will be twenty-eight in October," "I love life," or "Because of Egyptian methods."

Further analysis disclosed that some senile patients were evasive, uncertain, or self-critical in their answers. In general their responses were much more precise and direct and far less peculiar than those of schizophrenics, which differed in both logic and form. Schizophrenics put two or three unrelated elements together where only one element was needed, and showed an extreme vagueness in their answers that was never found in either of the other groups. The logical forms of their responses were sufficiently different from those used by the children to suggest that schizophrenic thought was a true disorganization and not a reversion to an earlier form.

While the senile responses offered only mild distortions on the basis of disorientation and simple circumstantiality, schizophrenics employed inexact substitute terms and phrases, and their answers were distorted by the presence of contradictory elements and personal preoccupations.

Another method that reveals disorganization in schizophrenic thought processes is the interpretation of proverbs. Benjamin [3] selected fourteen proverbs which he asked 169 schizophrenic patients to explain. Examples of the sort of explanations obtained are as follows: Explain, "When the cat is away, the mice will play." One patient said, "As applied to what? Just gives the mice more liberty." Another stated, "The last supper of Jesus, all those that kissed the novita." Still another, "That means feline absence and rodential job which has its sources in the nature of the Savior." There was a marked tendency to literalness in the approach of some patients to this task. For instance, in explaining "Ingratitude, thy name is woman," a schizophrenic said, "Gratitude is a virtue, ingratitude is a vice." Most patients were unable to shift from the abstract to the literal, as was required, and gave an even more abstract response. In general, they tended to stay within the literal meaning of a problem when it was worded concretely, and remain with the abstract meaning when it was worded abstractly.

It has been suggested that the poor sorting test performance of brain-injured or psychotic patients represented a regression to an earlier type of response. Thompson [30] made a study of the performance of normal children on sorting tests to afford a basis of comparison. She found that children who were nine to eleven years of age were usually able to form groupings which involved an abstraction and to state the generalization which they had used; but children of six to eight years were more apt to bring them together in concrete situations (for example, "I use a fork and a spoon to eat with"). In general, the ability to generalize or to use abstract concepts develops with age and begins to show itself between the ages of seven and nine in normal children. The disorganization in the process of generalization observed in the brain-injured and psychotic patients is similar to, but qualitatively different from, the performance of the younger children, just as the childish behavior of the senile dement is similar to, though qualitatively different from, the behavior of a child.

This point was further borne out by the work of Strauss and Werner [28] who investigated the disorders of the conceptual thought processes in mentally retarded children who had suffered brain-injury, and in ordinary idiopathic aments. They used three different test situations which involved the relation between objects, or the relation between objects and a pictorial situation. The brain-injured children selected more objects in the grouping

procedures than did the idiopathic cases (who were matched with them for age and IQ), but uncommon responses were more frequent. The principle of selection used by the brain-injured tended to rest on unusual, accidental, or apparently insignificant details. In the test involving the selection of objects to go with a pictorial situation, they produced highly concrete groups of relationships. Even when mental age was kept approximately constant, the brain-injured children showed differences from the normal and feeble-minded children in their strong reaction to unessential details of the objects and situations.

There is general agreement that young children, mental defectives, and brain-injured persons fail in tests of abstract intelligence, in performance tests requiring generalization, and in their use and understanding of abstract terms. The schizophrenic also performs on a different level of abstraction from that of the normal. Although many of his verbal productions include vague, abstract terms, these abstract terms are not used by him in the same way the normal person uses them, but seem to carry unusual, concrete connotations. His generalizations are made in too broad, too involved, too personal terms, and they are expressed in a distorted language structure.

General observations and interpretations of dementia

Since the phenomena of deterioration and disorganization exhibited by organic and schizophrenic cases are rather similar, one might ask why so much effort has been spent in attempts to distinguish between the "organic" and "functional" types of dementia. One of the reasons has been the inability of investigators to demonstrate any definite structural basis for the "dementia" of schizophrenia. Schizophrenic impairment is variable and relatively distinct. An apparently hopelessly demented patient may show an abrupt and often quite remarkable improvement in his mental capacities. In other words, his deterioration process is reversible, and, in all probability, he is not really so incapacitated and out of contact with the world as he appears. If schizophrenia is a distinct disease, then any evidence gained from the study of the impairment might provide a clue as to the origin and pathological course of the illness and so to more adequate forms of treatment. If schizophrenia is a reaction-pattern of maladjusted habits, the study of the impairment should give more insight into the habits involved. If schizophrenia is the overpowering of the Ego by Id and Superego, then the study of the impaired Ego should aid in therapy. So far there is no evidence which demonstrates conclusively which of the three assumptions might be correct.

Although the final stages of true organic dementia are distinguished by gross impairment of all psychological functions, there is evidence that not all abilities decrease in efficiency at the same rate. Several general principles seem to hold true for the course of progressive deterioration. The higher, more complex, and less stable mental processes are impaired before the lower and more automatic ones. This tendency is demonstrated by the fact that many patients do poorly on tests requiring abstract intelligence although they may still be competent on simpler psychological tests. General impressionability is decreased (otherwise stated, imperception increases), so that memory for recent events is faulty because of inadequate registration. Strongly fixed, habitual responses are not affected so much as others. Also, the more recently acquired forms of reaction are lost before those formed earlier in life. The use and understanding of language may be only slightly influenced when other performances are markedly disturbed. In general, complex mental functions, requiring extensive integration of many types of ability for successful performance, are affected in the course of deterioration before the simple, primary functions.

Goldstein [10] held that mental disintegration follows a consistent pattern. Categorical or abstract behavior suffers first and more severely than simpler forms of behavior. Tasks requiring representational behavior or imaginary elements are failed, while manipulations of concrete and tangible material are adequately carried out. Many patients are unable to shift voluntarily their attention from one aspect of a situation to another. Voluntary performances are particularly affected, even when activities directly or, so to speak, passively determined by the stimulus remain relatively intact. Also, those performances which are important in maintaining the whole individual are less apt to be impaired than other functions.

In spite of the presence of defects, the responses of a deteriorated person (except for isolated periods of chaotic and confused behavior) show definite order or patterning, although this order is different from the normal. Such a new order is achieved in several ways. The self-perception of the defect leads to a preference for situations which can be coped with adequately. The patient's tendency to stick to performances in which he feels at ease and competent expresses itself in the continued repetition of simple acts. Such persons are said to show "stereotyped" behavior. Careful and extensive psychological testing may be necessary to discover the impairment. The patient may be able to cover up actual defects through solving certain tasks in an unusual manner, or he may attempt to avoid the testing situation by some excuse as soon as he feels that he is going to fail.

The psychological studies which have been carried through with patients who have undergone either electric convulsive therapy or psychosurgery have led to a reexamination of the basic assumptions. If thorough psychological examination is made of a large enough group of mental patients before and after the therapy, then every disorder or impairment of emotion, volition, or intellect that we have considered will be found in one or more of the patients, but no single function or combination of psychological functions will be found to be regularly impaired in all patients. A tendency usually appears for patients who are classified as belonging in this or that diagnostic group to show certain combinations of impairment more frequently than other combinations, but the tendency is far from uniform. When the same group of patients are given the psychological examinations after shock therapy or psychosurgery, certain changes will be found. Some patients will show an impairment on some tests. If these particular patients are followed, it will usually be found that the loss in efficiency is transient and the impairment disappears in four to six months following the therapy. Other patients will "recover" from their mental illness and the recovery may or may not be reflected in changes in scores on psychological performance. The greatest changes are usually found on the scales which have to do with anxiety and complaints. Only rarely will permanent changes be found in tests which deal with intellectual functions. No regular changes have been found in tests which deal with the abstract attitude. No consistent changes have been found in performances on the Rorschach or Thematic Apperception Test which deal with personality structure.

The loss or gain in efficiency of intellectual function among those who recover varies from one patient to the next. It is *as if* some "X" factor operating within the individual had been removed or made relatively ineffective. The "X" acted as a handicap which interfered with one or another intellectual function in an individual way. There is fairly good evidence that if motivation is strong enough the handicap of the "X" during illness can be overcome in some part. In terms of such an hypothesis it is now believed that intellectual impairment is almost always more apparent than real and that such impairment is secondary to emotional, volitional, and attitudinal considerations.

Summary

There are various degrees and kinds of intellectual impairment shown in different forms of psychopathology. In most cases it is impossible to make an accurate estimate of the patient's mental efficiency prior to his

illness. Therefore, indirect measures in terms of scatter, of the difference between vocabulary efficiency and other mental performances, and of the ability to see abstract relationships are used to estimate the degree of impairment. No one of these methods is wholly satisfactory, but each provides some information of value.

There are certain general differences in the patterns of intellectual impairment distinguishing organic psychoses, senile dementia, and dementia praecox. In the first two conditions there is greater real, irrevocable loss, while in dementia praecox there is a disorganization (or reorganization) rather than a true loss.

Sorting tests, proverb interpretation, and reasoning tests reveal certain features of the impairment seen in schizophrenia. Some of these patients are unable to assume an abstract attitude toward such material, and react only to the direct concrete aspects of the situation. Others are unable to interpret proverbs when the task requires shifting from the abstract to the concrete or from the concrete to the abstract form of thought. Although such defective performance has often been described as a form of mental regression, it is not a return to childish modes of thought. Rather, the changes involved represent a different variety of intellectual process.

In many patients, psychological deficit is compensated for in a variety of ways. These compensatory mechanisms include avoidance of situations which cannot be adequately met, substitution of methods which they can use for ones which they may fail, rationalization of failure in terms which provide self-reassurance and which may or may not conceal the difficulty from others, and increased motivation.

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Chapter 28 *Amnesia and Aphasia*

DISTURBANCES OR LOSSES OF MEMORY AND SPEECH ARE NOT UNCOMMON occurrences. They are seldom specific; that is, they are seldom related to a single cause or determining factor. They may be associated with disturbances of intellect, emotion or volition, or any combination of mental processes. They are apt to assume undue importance both to the observer and patient since human beings depend so much on memory and speech for everyday life adjustment. Since they do interfere with ordinary existence, much has been made of these disturbances in the theories and literature of abnormal psychology. All sorts of "peculiar and wonderful" accounts of cases and theoretical explanations can easily be found in the literature. Like the symptom "headache" or illness "common cold," disturbances of memory or speech can occur alone but usually are found in combination with a wide variety of other symptoms.

Some definitions and concepts

Amnesia means loss of memory, which may be either general or partial, temporary or permanent. This loss may involve, to a varying degree, all ideas and actions, or it may be limited to some special class or group of memories, such as numbers, names, certain events, special fields of sensation, or special motor functions. The term *anterograde amnesia* refers to defaults in memory which are thought to be due to inattention or imperception. Hence, the event is not remembered because it was not adequately perceived in the first place. Or, there has been interference with its adequate fixation in the nervous system due to some neural disturbance. *Retrograde amnesia* involves loss of memory in the usual sense of forgetting previously acquired ideas or actions. *Retroactive amnesia* is a special case of retrograde amnesia. Here the memory loss extends backward for a certain limited

period before the occurrence of the shock or injury which disturbed the memory process. *Paramnesia* means falsification or illusions of memory. There may be simple fabrication in which an idea or image is wrongly placed in the past; illusions of recognition (*déjà vu*) in which there is a feeling of familiarity attached to some new perception, so that it is incorrectly referred to past experience; or the falsification may be retrospective, in the sense that there is a misinterpretation of the past under the influence of a delusion or the suggestive power of an idea. Similarly, inability to recognize or to recall that which is well known and thoroughly familiar is known as *jamais vu.*

Aphasia means loss of ability to speak. The word *dysphasia* would be more accurate since, usually, there is not a total loss but a disorder of speaking. Jackson [10] pointed out many years ago that the aphasic patient "speaks badly with what of his brain is left." By this, he meant that aphasia is not merely a loss, but also a representation of what the individual can do with the damaged tissue which remains. Hence, aphasics are not easily comparable, since they have not only differing amounts of loss, but also different degrees of efficiency of the remaining functional tissue.

Distinctions are made between aphasia, as an abnormality of speech, and certain other abnormalities which are closely associated with it. *Alexia* refers to a disturbance in the ability to read; *agraphia,* to a disturbance in the ability to write; *amusia,* to a disturbance in the ability to appreciate or produce music; *agnosia,* to a loss of the ability to recognize persons, objects, sounds, or sights (sensory aphasia); and *apraxia,* to a loss of the ability to perform skilled or coordinated movements when no paralysis, as such, is present. *Amnesic aphasia* is the term used to describe disorders of speech resulting from disturbances in memory.

Memory and speech disorders with evident organic basis

Localization of function

Both amnesia and aphasia may depend on anatomical, physiological, or psychological factors. That is, the disturbance may be due to an actual destruction (or nonfunctioning) of tissue, it may be due to a malfunctioning of tissue, or it may be due to a disordering of mental functions. Since it always seems desirable to explain a mental disturbance in terms of an anatomical loss or dysfunction, great effort and ingenuity have been expended in an attempt to "localize" memory and speech in some portion or combination of portions of the brain. The concept of localization of function assumes that there is some fairly close relationship which exists between brain structure and the various phenomena of memory or speech. For

example, Henschen [8] collected and analyzed the reports of 1337 cases in which both a clinical description of aphasia and an autopsy study of the brain had been made. Certain factors reappeared with some degree of regularity. Many of the cases showed some damage to the left cerebral hemisphere if the patient was right-handed, or to the right hemisphere if he was left-handed. In a majority of cases of motor aphasia (inability to speak even though language is comprehended) there was some evidence of damage in or near Broca's area of the cerebral cortex (Figure 34, B). However, the correlation between the specific area of anatomical damage and the variety of speech disorder was far from perfect.

The relationship between the extent of cerebral tissue damaged or disturbed and the severity of the aphasia is not consistent. Generally speaking, the larger the amount of tissue involved, the more severe the aphasia. However, there are many pronounced cases in which the pathology was found to be limited to a very small area; indeed, instances have been reported in which no damage could be located at the time of autopsy. In general, in some cases of aphasia there seems to be a specifically located anatomical damage while in most cases no localized defect can be demonstrated although some type of structural cerebral alteration should exist.

Attempts to localize memory functions have been even less successful than the attempts with aphasia. The destruction of any particular portion of brain tissue is rarely associated with specific memory defects. Rather, brain damage whether specifically localized or a generalized injury is apt to be associated with mental "confusion," an ill-defined inability to remember, which alters more or less rapidly to an overall recovery of memory, with "spots" of amnesia.

In most instances if the neurologist and neurosurgeon are able to make a careful physical examination of an aphasic or amnesic patient and if the skull is opened, they will find a focus of pathology at the place predicted. At other times they miss it or find no cerebral pathology. Not too much psychological value can be attached to diagrams which localize this or that mental function in one or another portion of the brain, particularly when the diagram goes on to indicate the interconnections between the specified areas. Primary localization can usually be established. Secondary connections are almost always guesswork.

General physiological disturbance of the brain

Correlated with brain injury [3] (blow on the head, piercing head wound, electric shock, epileptic seizure, and the like) there is usually an immediate *loss of consciousness* which has been defined as "absence of a psycho-

logically understandable response to external stimuli or inner need." This is followed after a varying period of time by a *semicoma* which is marked by simple, poorly directed responses to painful stimuli or loud demands. This is then followed by a phase of automatic behavior known as *mental confusion* in which responses of increasing appropriateness are made but with more or less complete disorientation in time, place, or person. There is no subsequent memory of any of these states (posttraumatic amnesia). Recovery from confusion is usually rapid but in some instances in which recovery was more gradual it was possible to show that self-recognition and attempts at self-orientation come next in order. There is then a period of disorganization and restriction of perception, which is reorganized and expanded as the confusion lifts. Orientation in time is usually the last process to recover. Usually the patient recovers full memory up to one or two days previous to the period of unconsciousness. He may recover full memory up to the instant of unconsciousness, but frequently there are isolated amnesic spots which he cannot recover.

Brief retroactive amnesia [14]

If there is a period of lost memory extending backward in time before the injury or terrifying experience, which persists after recall has returned to normal, it is known as retroactive (or retrograde) amnesia. Such amnesias can occur in a variety of ways:

(*a*) Full recall of injury: ("Recalls being lifted off bicycle by blast and hitting ground. Not unconscious. Cannot recall hearing sound of explosion.")

(*b*) Amnesia for injury: ("Was passenger in car struck by another car. Amnesia for details of the trip for about a mile before reaching scene of accident. Unconscious.")

(*c*) Amnesia antecedent to injury: ("Man could easily jump over a rope or log 3 feet in height, but unable to make himself jump over a 2½ foot wall. At age 14 when jumping over 3 foot wall had caught foot, fallen forward, broken wrist. Recalled jumping and falling but not catching foot, though assured by bystanders he had done so.")

(*d*) Amnesia without injury: ("Amnesia, often termed 'black-out,' among paratroopers for first and second jumps when training. Amnesia usually starts with jump and ends with sound of parachute opening.")

(*e*) Repeated terrifying incidents: ("*First experience.* Recalls standing, being blown over, rolling and falling into trench. Not unconscious. *Second experience.* Recalls sound of explosion. Amnesia until found self

getting up from grass. Probably short period of unconsciousness. *Third experience.* Recalls sounds of other distant bombs but not that of one that blew him over. Brief unconsciousness.")

(*f*) Recoverable memory: ("Clergyman possessed amnesia for room in house in which he had lived for 10 years. Under hypnosis regained memory of room and of a friend of his father losing his temper, rising, coming towards him, placing his hands on his throat and nearly strangling him, about 30 years previously.")

(*g*) Nonrecovered memory: ("Amnesia for period of getting into truck until in hospital. Under hypnosis memory regained for entering truck, sitting on box, truck turning corner, box swaying, falling out of truck head-first till eyes level with wheels. The final part of the fall and striking ground not recovered.")

In a series of 117 such amnesia cases Rudolf found that the duration of the amnesic blank was not related to the length of the period of unconsciousness. Usually the blank was concerned with the few seconds before the injury and these few seconds rarely could be recovered in hypnosis. Whether or not amnesia occurred following injury was not related to the presence or absence of other evidence of psychopathy. He concluded that retroactive amnesia was not necessarily due to cerebral injury, to retroactive inhibition, or to mental preoccupation. Rather the amnesia was connected with repression due to fear, with the exception of the last several seconds before injury, which gap was probably due to the organic effects of the blow to the head.

Amnesia associated with ECT and psychosurgery

Electric convulsive therapy (ECT) affords an excellent opportunity to study the amnesic process in detail. There are wide individual variations in the memory disturbances following ECT. A very few patients are no more confused by a series of treatments than the ordinary person is after awakening from normal sleep. Other rare cases show serious amnesic symptoms which may persist several months after treatments have ceased. Most patients begin to show mild, persistent confusion after six to ten treatments, which confusion disappears during two to six weeks after treatments have ended. (It is interesting to note that the abnormalities in the brain-wave pattern parallel the state of mental confusion.)

The following account is a verbatim record taken by Dr. Joseph Zubin immediately following the third ECT treatment given Mrs. "Patience Oliver." (The figures indicate minutes and seconds following shock.)

3′:45″ Searching movements of eyes and limbs.
4′:00″ JZ, "What is your name?" No answer.
4′:15″ JZ, "Who are you?" PO, "I don't know."
5′:00″ JZ, "What's your name?" PO, "Patience Smith" (her maiden name); "Am I married?"
6′:30″ JZ, "Where are you?" PO, "I don't know." (Pause) "How long am I here?"
7′:00″ PO, "What am I doing here?" JZ, "You had a treatment."
7′:40″ JZ, "Do you have any brothers or sisters?" PO, "I don't know."
8′:15″ PO, "How many treatments have I had?"
8′:40″ PO, "Who are you?" (Pointed to JZ whom she knew well.)
9′:30″ JZ, "Where do you live?" PO, "I don't know where I live."
12′:45″ JZ, "What's your first name?" PO, "Lord, I don't know."
13′:20″ JZ, "What's the name of this hospital?" No answer.
14′:40″ PO, "I don't know where I am."
15′:25″ PO, "How many treatments is this?"
15′:35″ JZ, "Do you remember your name now?" No answer.
15′:45″ PO, "Do I go home? When?"
16′:15″ PO, "Patience." (Her first name.)
16′:20″ JZ, "Patience, what?" PO, "Patience Oliver."
16′:40″ JZ, "Are you married?" PO, "Yes."

The patient was now clear enough to respond to a memory test she had been taught two hours before ECT. She had learned a series of pairs of words, like COFFEE—BOZAM, so that when she saw the stimulus word COFFEE she would respond BOZAM.

18′:00″ JZ presented serially six cards with a single stimulus word on each, saying, "Do you remember seeing this word on a card before?" PO said, "No" each time. JZ, "Do you remember seeing cards something like these before?" PO, "Cards, yes."
19′:15″ JZ next presented recognition cards. For example a card would have printed on it COFFEE—DAHOM; NEHICK; BOZAM; LIPEC. JZ, "Which word goes with coffee?" PO, "None of them look familiar."
23′:30″ JZ, "What's the name of that river?" (Pointing to Hudson River outside window.) PO, "I don't know."
24′:30″ JZ, "What city are you in?" PO, "I don't know—New York?"
25′:30″ JZ, "Feel better now?" PO, "No."
26′:00″ PO, "Have I ever been in this room before?" (She was in doctor's office which she had been in many times before.)
28′:30″ Patient given recognition cards again. Gets 5 out of 10 correct. PO, "Did I see these words before? I don't think I saw them."
32′:20″ Patient given another recognition test. Gets 11 out of 15 correct.
40′:00″ Patient went back to her own room unassisted.

It is evident that the patient was constantly trying to regain her orientation. She showed an amnesia for a period of time preceding and following the shock. In the return of personal reorientation her maiden name returned

first and then her married name. Only gradually did she recognize where she was. It should be pointed out that although she could not recall the learned material and denied or was doubtful of having seen it before she was able to make better than chance scores on recognition material. Generally speaking, there is little, if any, correct recognition during the first 20 minutes after shock. During the 20 to 40 minute period the recognition tests give progressively better scores and after 40 minutes perfect or nearly perfect scores are made.

Zubin [16] systematically investigated the effect of ECT on learning and recall. He demonstrated that recall of material learned from 24 hours to one hour before ECT was absent and that it took as long to relearn the same material after ECT as it had before ECT. There was some tendency for material learned more than 24 hours previously to survive. In order to test interference effects he had patients learn pairs of words before ECT and then relearn pairs after ECT. In the relearning one word of each pair was the same as in the original learning, the other was new. In normal learning the old associated word interferes with the new association and slows down the learning. This interference effect was enhanced after ECT. These findings led him to conclude that ECT does not destroy the elements of memory but simply disorganizes them.

It is usually assumed that the amnesia is more closely associated with memories of the fearful, terrifying, or personal variety than it is with impersonal memories. That is, amnesia is a form of repression, an active keeping out of mind of unpleasant material. Janis [11] interviewed two equated groups of mental patients getting samples of things they remembered, some of which were emotionally tinged and some which seemed impersonal. (Details of a suicide attempt; name and location of public schools attended; description of best-liked job.) He found that both personal and impersonal memories might be lost following a course of 8 to 27 ECT treatments but that the emotional memories were more apt to be lost. Suicide attempts, visits to psychiatrists, disturbed emotional periods which led to hospitalization were more usually forgotten than were other types of memories. The control group of patients who did not receive ECT did not show this selective loss of memory during the four to six months of the study.

The patients studied in the Columbia-Greystone Project [2] (Chapter 23) were carefully investigated before and after operation with respect to learning and memory (same methods as Zubin used in the ECT study). They were also carefully examined for any evidence of aphasia. No evidence was found for any loss in learning ability or in memory, nor did any aphasic symptoms appear in any patient including two that had Broca's area

(area 44) bilaterally removed. Since many of this group of patients did lose the emotional "charge" associated with their memories and since the operations involved the removal of more or less specifically localized portions of brain tissue, it may be concluded that there was no evidence of localization of memory or speech in the frontal lobes of the brain.

Korsakoff's psychosis

There are several varieties of amnesia which are usually held to be specific to certain disease processes to such an extent that they are a leading symptom used in making the diagnosis of the particular disease. In Korsakoff's psychosis which follows organic brain damage, usually associated with chronic alcoholism (Chapter 15), there is a memory disability which is of psychological interest. Such patients show a deficient recall of recent events, with a tendency to falsify and fill in their conversation with confabulations revealing gross disorientation for time, place, and person. Memory for remote events is usually satisfactory, but the organization of recent material is completely lacking.

Although the objective facts are clear, many different explanations have been advanced.[12] Some have held that there is a disturbance of thinking, especially in the orientation of thought, so that the patient cannot find the proper memory at the proper time, even though there is no true memory loss. Others have claimed that the disturbance is not due to loss of orientation, but to a loss in the time sense based on temporal signs of the memories. Other investigators suggested that the patient is able to grasp and retain only simple relations, while the whole situation and background are foggy or unorganized. Still others believe that the memory loss is only an apparent one and actually represents a special memory organization which resembles that occurring in dreams. It is therefore said to be characterized by symbolization, distortion, condensation, and elimination of disagreeable memories, with the addition of other elements which transform the memory material in terms of wish fulfillment. Finally, other theorists concluded that it was impossible to explain the Korsakoff's psychosis in terms of a pure memory loss, or even to maintain that the memory disturbance was essential in the psychopathological picture. They held that the whole emotionality and personality of the individual were disturbed. Since his urges and emotions are no longer driving forces, he lacks spontaneity and depends on external stimulation, being no longer able to do anything on his own. Thus, all of these investigators agree that there is a defect in memory, but they interpret the cause and significance of the defect in different ways.

Pick's disease

Pick's disease is a form of presenile dementia with organic deterioration. This dementing process leads first to a breaking down of the more complicated social adjustments, and cultural and ethical standards, while memory remains intact. As the disease progresses, memory, as such, becomes impaired in a peculiar way. The material of memory is still preserved even in cases that have progressed a long way in their dementia, but they are unable to use memory as an intellectual tool. Such patients become childlike, wander about, often get lost, tell poor jokes, and keep repeating the same stories over and over. They are able to recall details rather exactly, but cannot use their memory in their adjustment to everyday life.

A careful study was made of the psychological deviations of such a case by Goldstein and Katz.[6] In this patient they found that most of the tests of simple, direct memory gave no evidence of disturbance. If the memory was in any way complicated, either by relationship to time or to space, it became ineffective. For example, this patient was able to find her way from her room through the corridors and stairs of the hospital to the workroom where she had been sewing. If she was disturbed or detoured on her pathway, she became confused. While she was knitting she would follow a pattern fairly accurately, but if interrupted and asked to show how she was doing the work she would get completely lost and be unable to demonstrate what she had been doing. If asked to reproduce the drawing of a straight line, a circle, and a square, she could copy them correctly; but if a minute later she was asked to reproduce what she had just drawn she was unable to do so. Instead, she would make a square with a horizontal and a vertical line bisecting it, which she said was "a window of a church." In general, then, the memory disturbance in Pick's disease is a distortion of relationships, so that the memory images are somehow no longer connected properly in time and space with the mental life of the individual.

Alzheimer's disease

Another variety of presenile dementia is called Alzheimer's disease. These patients retain memory for remote events fairly well.[1] Any events which were outstanding or had some emotional coloring are especially easily and elaborately recalled. The main defect is in immediate memory and recall. For example, when asked to remember a series of five or six words or letters, the patient may be able to repeat only two or three after a thirty second delay. He may complain, "It got away," or "I can't keep all those."

However, when the series of material to be memorized was dwelt upon very intensely with a good deal of overlearning, it could be held in mind and reproduced several days or weeks later. The defect here is in the loss of immediate retention which is out of proportion to the accompanying deterioration in other intellectual functions.

Korsakoff's psychosis, Pick's disease, and Alzheimer's disease are similar in that they all show a memory defect. However, the character of the memory disorder in all three is distinct. This distinction occurs in the relationship existing between memory and the remainder of the intellectual organization of the patient. In all three there is a loss in simple, recent memory. In Korsakoff's psychosis, this loss is related to the association among the ideas themselves and leads to a fabrication of material to supply the missing links. In Pick's disease, the memory disorder pertains to failures of orientation in time and space, or to some variety of a figure-ground relationship. In Alzheimer's disease, there is a constriction or narrowing of the ability to perform mental activity in several fields at the same time. The result is a loss in fixation which can be compensated for by a high degree of attention.

Emotional versus intellectual speech disturbances

There is a fundamental difference between interjectional (emotional) use and propositional (intellectual) use of words as symbols of thought. There are aphasics who have full consciousness of the meanings and intellectual use of words, phrases, or objects. There are other aphasics in whom the perception of single words seems normal, and yet further examination discloses a true defect in the consciousness of the meaning of phrases and sentences. In ordinary aphasia there is usually little damage to emotional or interjectional speech, while intellectual or propositional speech is apt to be severely damaged.

The term aphasia is usually applied to patients with speech disorders where there is evidence of organic brain damage, and presumptive loss of the necessary cerebral tissue to mediate the activity. Yet there are many instances where aphasics under emotional stress have spoken. For example a mute motor aphasic who, seeing a Zeppelin disappear in flames, exclaimed, "Hallelujah!"; the patient who will when excited repeat one word or one phrase—such observations are common in the clinical histories of aphasia. Some patients may swear with a great deal of fluency and yet be totally unable to use the same words in an intellectual or propositional sentence.

Making use of matched groups of aphasic patients and patients without

aphasia in a multiple-choice experiment involving thinking, Meyers [13] found no significant difference between the performance of the groups. The fact that one group was unable to formulate in words their problem solutions (intellectualize them) did not hamper their general ability to think. The loss in aphasia is not solely an intellectual one, but rather a combination of emotional and intellectual factors.

Effect of hypnosis, sodium amytal, and glutamic acid

It was pointed out previously that much of the memory loss following brain injury can be recovered through the use of hypnosis. Similar restoration of memory can be brought about during the drowsy state induced by the injection of sodium amytal, pentothal, or other barbiturate drugs. To an amnesic patient during the drowsiness the therapist suggests that he is back at the scene of the accident, the battlefront, or the original terrifying situation. The patient is asked to describe it in detail. The reactions of the patients vary widely but as a usual thing they describe and even act out the situation carrying the action up to the point of unconsciousness. In the description much of the memory blank can be filled in and by suitable suggestion the patient can be induced to incorporate it in his normal waking memory.[7]

Hoch [9] found that patients showing memory loss following ECT could regain during sodium amytal narcosis some of the memory material which had apparently been lost. The loss of the feeling of familiarity which distresses some patients during the immediate period of recovery after ECT is dissipated by sodium amytal. Patients who are hypnotized before ECT often remain under the control of the hypnotist on regaining consciousness. Some patients will execute posthypnotic commands given before ECT after the state of immediate confusion has worn off.

It was pointed out in Chapter 17 that glutamic acid has a positive value in the treatment of brain-injured aments. The administration of glutamic acid [9] to ECT patients before shock reduced the period of confusion and memory impairment in about 75 per cent of patients. They recovered from the confusion more rapidly and although the objective tests of memory impairment showed no improvement there was not the anxiety or irritation connected with the memory impairment which is usually shown by the ECT patient. It seemed that although recall and relearning were not affected by glutamic acid, recognition and a feeling of familiarity were, and having "landmarks" of recognition reassured the patient as he recovered consciousness.

In general the weight of the evidence is that organically determined memory and speech disturbances are only partly associated with a localized brain pathology. Rather they depend on a generalized integrated functioning of the brain. The impairment of memory or speech is more often a disorganization than a loss. In many instances there is clear evidence that the organic disorganization is overlaid by nonspecific factors such as emotional repression or changed motivation.

Functional disorders of memory and speech

It will be recalled (Chapter 6) that among the more unusual features of hysteria and dissociated personality were the peculiar disorders in memory. In fact much of the basic theory which Freud and his followers have utilized in formulating the psychoanalytic explanations of psychopathology grew out of their exploration of memory disturbance in hysteria and other forms of neurosis. Their assumption of an active unconscious and of a repression process is basic to psychoanalytic explanation.

Repression

The essence of repression lies in an active process of rejecting and keeping something out of consciousness. Usually, it is thought of as a technique for preventing conscious recognition of the existence of some basic instinctive impulse which will cause pain or unpleasantness if admitted into consciousness. The process consists of an automatic and unconscious rejection of the idea or image, accompanied by a loss of effectiveness of the idea or impulse in initiating the same action.

According to Freud,[4] repressed impulses have certain well-defined characteristics. They are not represented in their true form in consciousness, and they develop in the unconscious in a more luxuriant fashion than they would if they were conscious, so that they give the illusion of greater strength than they actually possess. Furthermore, repression is highly specific to each idea and substitute idea and is very mobile; it does not occur once and only once, but demands a constant expenditure of energy. The degree of repression varies with the strength of the repressed impulse.

Essentially, repression is a method of resolving a conflict between two mutually incompatible tendencies. Its existence as an active process can be determined only if the presence of two or more conflicting tendencies can be verified. The process of repression involves the blockage of one or the other tendency from consciousness. This blockage is shown first by the

discovery of the existence of some emotional tendency as a potential source of action, and second, by a known lack of relevant conscious associations.

It is difficult to distinguish between "amnesia," "dissociation," "double personality," "loss of personal identity," and the like on a qualitative basis. The differences are in the completeness of the memory loss and in the circumstances surrounding their occurrence. The common feature is that such patients undergo a changed state of consciousness usually with a sharply marked onset and end. During the period they are amnesic for most or all of the essential facts of their previous life and on recovery they are more or less completely amnesic for the episode itself.

CASE 31: The patient KL was a 23-year-old white coastguardman, who was found one day in an apparently unconscious condition in the shower room of his barracks. He was taken to a hospital where he remained stuporous for two days. When first seen by the psychiatrist about a month later he had an amnesic gap covering this two-day period. He recalled only that on a certain Monday he was in the mess hall; shortly thereafter he must have made a telephone call, since he vaguely remembered walking out of a phone booth but had no idea whom he could have called. While in the mess hall he suddenly dropped a food tray he was holding; the next thing he knew he came to in the hospital two days later.*

When this patient was hypnotized the following story was obtained.[5] At the moment of dropping the food tray he had been thinking about what had happened the previous day when he and a friend had visited the latter's girl who had prepared dinner for them. He was thinking how bad the service food was and wishing he had a good meal like that of the day before. He immediately went to the phone, called the girl, and thanked her for the dinner. After calling he became concerned that his wife might find out about his making the phone call. He protested that he loved and missed his wife and was not interested in the girl. It became obvious through his protestations that he did have repressed sexual wishes concerning the girl and guilt feelings about his wife. Following the phone call he took a shower, became dizzy, fell in a stupor, remained unconscious two days and when aroused insisted he was not in the hospital but back in his home in Georgia apparently in an earlier period of his life before he had joined the service.

In this case the amnesia resulted from the repression of both sexual desires and guilt feelings and was associated with a dreamlike state in which he behaved as though he were home and there were no war.

In many instances both the patient and the investigator have been impressed by the fact that the amnesic episode is experienced as a dream. The

* Condensed from C. Fisher, "Amnesic States in War Neurosis," *Psychoanal. Quart.*, 1945, *14*, 453.

patient will report that he cannot remember a period of his life. Then under hypnosis, sodium amytal, or persuasive suggestion it "comes back" like the memory of a dream. At first it seems unreal and truly dreamlike. When more details are recalled, and more points of recognition and familiarity are filled in, the memory becomes more and more real and finally takes its place in the span of life's memories.

Dissociation and fugue

Another way of classifying different types of amnesia is to distinguish between mere forgetting, which is due to the passage of time, and amnesia of the pathological variety, in which whole blocks of experience are missing from the mental life of the individual. During such a missing block of time the person has gone his way, seeming fully conscious, often assuming another name and "personality."

CASE **32:** GH was a forty-three-year-old petty officer in the Coast Guard. When admitted to the hospital in 1942 he was in a state of awareness of loss of personal identity. It was discovered subsequently that he had had at least three previous major fugue states and many minor ones extending back over a period of 18 years. In several of these he traveled under an assumed name. On admission the patient was moderately intoxicated, seemed quite depressed and somewhat confused, but could speak rationally. He complained that he was being chased by three men, that he saw them wherever he went. He believed they wanted to kill him and he heard them call him obscene names. He knew nothing about his past life but had some fragmentary memories about being in several other hospitals. He believed he was in the navy. He did not know what he looked like and could not state the color of his eyes or hair. He believed he was 37 years old and that it was 1937. He did not know whether he was married or single.*

This particular patient was greatly perplexed by the loss of his memory and personal identity and made strenuous efforts to remember. After several hours of such effort accompanied by much coaxing on the part of the doctor his memory gradually returned. He first recalled the names of his wife and children, then his own, and finally his entire past. This part of the memory restoration was accomplished without hypnosis or sodium amytal.

It was then found that he had a number of gaps in his memory indicating previous dissociated states. Under hypnosis these gaps were partly reconstructed. The first had occurred when he was eighteen and had lasted six weeks during which time he had traveled from New Hampshire to Texas. The memories returned to him in a series of vivid kaleidoscopic

* Condensed from C. Fisher, *ibid.*, 451.

pictures. During the three major fugues he had traveled under the name of his favorite uncle. The patient identified himself with this uncle who was a failure in life. He felt both he and his uncle were the black sheep of the family. During his fugues it did not seem that he knew who he was, where he was going, or anything about his past. It never occurred to him that he did not know these things; he just kept going. The dreamlike quality of his fugue was apparent.

Dreams have been called the living out in fantasy of "unliveoutable" wishes. Conflict occurs between "desire and duty." Either or both may be repressed, forgotten, put out of mind, or denied. But out of consciousness does not end conflict. The desire remains associated with many other memories or ideas. Like the repressed portion of an off-color joke with a double meaning, the repressed elements are quick to enter consciousness by the "back door." The entry is facilitated by symbolization, that is, by expression in a fashion in which the repressed association is not too readily identifiable. Or it may be dramatized by imagining a story or fantasy which makes the wish acceptable while still concealing it. A prime quality of dream experience is its felt unreality, that is, the lack of a feeling of familiarity.

It is possible to bring most, if not all, of amnesic phenomena under the same dynamic explanatory principles that have been used to explain dreams. In the confused state of consciousness which exists in sleep, during strong emotion, or after head injury there is a breaking up or loosening of ordinary associative processes. An outstanding characteristic of the experience is one of loss of feeling of familiarity although memory items may still be correctly recognized. In the process of reorganization when ordinary connections are made, the dreamlike quality is gradually replaced by the feeling of familiarity.

In these terms repression is a mental process in which both the idea and its feelings of familiarity are broken off (denied) as a part of life experience. Functional amnesia represents a complete loss of familiarity, a dissociation of part of experience. This gap may be filled with fantasy and action as in the fugue state or it may even acquire a relatively new and complete set of life associations as in instances of complete dissociation of personality existing over a period of time.

Speech disorganization in schizophrenia

The bizarre, unusual, and disorganized quality of schizophrenic speech bears resemblance to, though not necessarily identity with, the functional

disorders of memory. Many schizophrenic patients seem to give up the conventions of ordinary speech communication and to change to a fashion more fitting to their fantasy processes. This new style leads to the formation of condensations, neologisms, and symbolizations. A study of the language production of a group of schizophrenic patients, made by Woods,[15] provides examples.

The transference of certain like qualities from one experience to another is accomplished in normal language by the expedient of analogies, allusions, similes, or metaphors. The uncritical employment of language by the schizophrenic allows him to make use of vague and farfetched metaphors in his speech. Both internal feelings and conflicts, as well as events in the outside world, may be commented on metaphorically by the schizophrenic. A patient described as follows her reluctance to sit on a bench, under a shade tree, from which a highway was visible:

"Well, I don't know. It seemed I went through a big decision and I looked out of the window on the tennis court and I watched the tennis game and then Dorothy and Mrs. Trukken wanted me to sit on the court." [What was wrong about that?] "Well, I don't know. It seemed to have a meaning." [What did it mean?] "It meant freedom." [What did?] "Well, I don't know. If I had gone on with them and faced the sunshine it meant that." [Why?] "Well, if I had faced that way my back would have been toward this institution and there was an open road that way." *

In the use of the metaphor, the schizophrenic neglects to inform the listener that he is using a metaphor; indeed, it sometimes seems that he is unaware of the fact himself. Sometimes the patient will use phrases like *just as* or *as though,* but more frequently these are omitted. Generally, the metaphor becomes eccentric and bizarre, consonant with what appears to be carelessness and lack of precision. Part of the eccentricity is due to the strange subjective nature of the material to be depicted—somatic sensation, emotional conflict—which apparently requires neologisms and unusual metaphorical formulations.

Another characteristic of schizophrenic language is a poverty of precise, crystallized thought. For example, a patient said, "It seemed like, as though somebody wanted me to go ahead and to do something. After that they didn't seem to do anything so much until a little later on again, why, it just seemed like as though they knew what I was doing all the time." This patient had no answers for insistent, logical questions, and so

* W. L. Woods, "Language Study in Schizophrenia," *Jour. Nerv. Ment. Dis.,* 1938, *87,* 305.

used the most available material in a vague sort of way. Another example of this same poverty is shown by an expansive style where many words are used without really saying anything. When a patient was asked to explain the proverb, "Let sleeping dogs lie," he said, "It would be normal to any object that was seemingly comfortable to let it remain uncomfortable and if there was something to be appreciably gained it would be better to let it continue." Such speech is given plausibility by being cast in a casual language structure which meets the formal requirements of conversation. In contrast to this deceptive semblance to concrete ideation, there is really much vagueness and many empty phrases and platitudes. Such speech is rendered possible by the retention of language habits and facility. At times this poverty leads to eccentric speech, mannerisms, inexact words, neologisms, all of which develop into a style which is stiff, rigid, short, condensed, and stereotyped.

Another oddity in schizophrenic speech is the way in which such patients slip from one idea into another. For example, one patient said, "They just want to laugh is all." [About you?] "No, about milk bottles." [What does that mean?] "Oh, pure food." As the patients become more deteriorated, they use more inexact approximations in which one idea is confused with another. For instance, "It's two thousand pounds across my stomach." "A dictionary is too many miles long." The general tendency is for the thinking to get into a category which is inexact instead of precise and to show a lack of direction. In this type of thinking it is easy to make a rapid passage from one idea to another on the basis of like qualities, even though these similarities may be very superficial. Due to a pronounced deficiency in conceptual thinking, the patient can change easily in his thought processes without any permanence or reference to logical associations.

In Chapter 10 the experience of depersonalization together with the eccentric fantasy life of the dementia praecox patient were pointed out in some detail. These patients do not show either amnesia or aphasia in the usual sense, but they do experience and express varying dreamlike qualities in their thinking. Again it is a disorganization of mental life, though a different sort of disorganization from that shown by the neurotic or hysterical patient, just as the organically based memory disturbances in head injury, Korsakoff's psychosis, Pick's disease, or Alzheimer's disease, differ among themselves.

Just what may be the determining factors which give rise to the different varieties of disorganization in memory and speech are not known. That physical constitution, previous life experience, habits and attitudes,

and the basic nature of the illness itself play a role seems obvious. The share played by each, and whether other elements enter, is not known.

Summary

Disorders of memory and of speech are apt to be given an undue importance both by the patient and by the reporter. So much of everyday interpersonal relationship depends on memory and speech that any deviation tends to be overvalued and often incorrectly reported.

The evidence indicates that sharp localization of the functions of memory and speech is the exception rather than the rule and that both are "generalized" functions of the brain. The close examination of disturbances of memory and speech following brain injury shows that there are real gaps when the patient was unconscious, but that the gaps of retroactive amnesia extending to either side of the unconscious period are often recoverable.

In several different varieties of organic brain deterioration the associated memory defect is more or less distinct. There may be a loss in the association among ideas so that the blanks are filled in by false memory material. The material of memory may lose part or all of its orientation in time and space. There may be a constriction in mental processes so that memory fixation does not take place unless there is a higher level of attention.

For reasons not clearly understood it is possible to restore amnesic gaps during hypnosis or during the drowsy state induced by barbiturate drugs by getting the patient to describe the circumstances leading up to the event with which the amnesia is associated. Injections of glutamic acid seem to facilitate the associative process so that there is not so much of a loss in the feeling of familiarity following ECT.

Many of the phenomena of amnesia and amnesic states, whether organic or functional in origin, may be thought of as forms of "repression" with loss of the feeling of familiarity. They are similar to (or identical with?) dreams. The same mental mechanisms and dynamic attributes of ordinary dreams are shown by the amnesic patient.

The speech disorganization shown by many schizophrenic patients has much of the same qualitative disorder as that of the amnesic case. Differences between various organic and functional memory disturbances may be distinguished. The clinical facts of the distinction are clear enough but the factors giving rise to the distinction are numerous and as yet not properly evaluated.

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Chapter 29 *Disorders of Volition*

DISORDERS OF WILL AND VOLITION ARE USUAL COMPLAINTS IN ALMOST every variety of psychopathology. Unfortunately that phase of human mental life and behavior, which in everyday conversation is called "will," is commonly omitted from general and clinical psychology. This omission grows out of the fact that the term *will* and all of its dependent concepts are involved in complex questions, such as "freedom of the will," "intent and responsibility," or "will power," which have a variety of meanings in religion, law, and philosophy.[10] Psychologists usually have avoided these issues, since they do not lend themselves to scientific investigation. However, if one continues to accept a common-sense view of psychopathology, then some consideration must be given to the disorders of volition. Certainly, in everyday life we always speak and act as though everyone (including ourselves) has some sort of mental process which we all call "will." This phenomenon is related to the behavior which we speak of as voluntary, in contrast to involuntary or "unwilled" behavior.

There is but little experimental literature bearing directly upon the measurement of voluntary and involuntary behavior, or bearing upon the will as it enters into the mental life of any individual. Most mental patients complain at one time or another that they are "forced" to do things against their will; that there is some inner compulsion which is beyond their self-control. Other patients complain of a lack of will power; of an inability to make up their minds even when they desire to do so. In the same fashion the friends and relatives of a neurotic or psychotic patient usually have the idea that the patient could get well if he wanted to; that his mental peculiarities are somehow due to a lack of will power.

That individuals differ in the degree of volition, just as they do in intelligence or emotion, goes without saying. Some are determined, strong-

willed, and decisive; while others are spineless, indecisive, and very suggestible. Just what the limits of variation in voluntary behavior are has never been determined. There is no scale of volition comparable to intelligence tests. Nevertheless, the gross deficits in voluntary behavior which occur in psychopathological persons are obvious, and these deficits in degree or quality provide certain distinctive elements in the classification of mental disorders. The following aphorism illustrates the role of will impairment: "The patient says, 'I cannot'; his family says, 'He will not'; while the truth is, 'He cannot will.' "

Disregarding all of the philosophical and theoretical speculation concerning the nature of will, the major difficulty with the psychological formulation of the problem of the psychopathology of volition lies in the fact that there is so little relevant experimental material to serve as a basis in fact. There are a few experiments which deal with the level of aspiration (willful ambition), interrupted activity, and perserveration or persistence, in which normal and abnormal persons have been compared. The results, though interesting, do not shed too much light on the central problem.

An additional difficulty comes from the fact that many psychopathologists are convinced that clinical descriptions, oriented in terms of disorders of volition, are essentially meaningless. They point out that therapy directed toward rehabilitation of "will power" is unsuccessful. They also point to the long history of human thought which attributed mental abnormality to disorders of will, and to therapy which was based on punishment—all of which led nowhere. For reasons such as these, there is but little modern clinical literature which deals with disorders of volition. A psychological formulation of the problem of volition was made by the German psychologist, Ach, and his principles were applied to psychopathology by Bostroem. Our presentation does, in the main, follow Ach [1] and Bostroem.[3]

Components of the will process

Ach, on the basis of his extensive investigations of volition, analyzed the phenomenon into three major components—*motivation, will-act,* and *voluntary action.* These three components together constitute a *determining tendency.* (See Figure 37.) Motivation, in this sense, refers to all of those factors which are experienced or comprehended as causes of a given action. Factors of motivation may be overtly conscious, partly conscious, or truly subconscious. In any case they led up to the decision and, hence, to voluntary activity. By will-act is meant the moment of decision in the mind of the individual, at which instant the thought process is experienced as a

subjective feeling which may be described by the phrase, "I now really will," or "Now I have decided." Voluntary action is the activity between the decision and the goal which was encompassed in the decision. The entire process of motivation, decision, and volitional activity constitutes a determining tendency. Such a tendency grows out of the motivation; is released

DETERMINING TENDENCY (VOLUNTARY PROCESS)

MOTIVATION	DECISION (WILL-ACT)	VOLUNTARY ACTION	GOAL
I must! I want to! How should I? What can I? Etc.	I will do this!	I did decide and I am doing it!	I did what I decided.

Fig. 37. Schematic analysis of the voluntary process.

by the will-act (decision); and continues to operate with or without the awareness of the person until the goal is reached. Only if some insurmountable obstacle happens to block the entire determining tendency, does the need for a new decision and a new line of voluntary activity arise, thus leading to a new determining tendency.

We will consider the disorders of motivation, will-act, voluntary activity, and determining tendency as they occur in different psychopathological conditions, together with clinical descriptions and such experimental evidence as is available. It should be borne in mind that pure will pathology, unaccompanied by other morbid psychological disturbances, does not exist, any more than pure disturbance of intellect or emotion exists.

Disorders of motivation

The problem of motivation enters largely into social psychology and the psychology of learning as well as into abnormal psychology. The following presentation is of necessity limited to a few examples from psychopathology. It is obvious that much might be done in an experimental fashion to develop a better understanding of disordered functioning of motives but that information is not now available in any systematic fashion.

In certain patients during a catatonic stupor [4] there is an exalted thought process found in conjunction with inadequate emotionality which is usually

accompanied by some facial expression and occasional gestures, but with few other movements. Here, the patient is overpowered by pathologically determined "motives" (wishes, desires, urges), which follow each other in close succession and are never really transformed into either decision or voluntary activity. Thus, despite the profusion of thought, the intensity of conflicting or unorganized motives precludes any actual voluntary activity. This process may go so far that the patient is completely inattentive and, hence, appears to be totally self-engrossed or even unconscious. Such patients will later report that their thoughts came so rapidly and intensely that it was as if they were living in a vivid dream. They seem to have witnessed the experience without themselves taking part in it. Whenever these catatonic patients break into action while under the influence of such disorganized motives, they behave in a very disordered and incomprehensible fashion.

One of the ways in which motives become balanced and transformed into voluntary action is commonly referred to as the "basis of judgments of value." Different people have different values. This variation accounts for much of the differences in tastes and customs among people. So long as the variations in values are confined within accepted limits by most members of the community, no particular problems present themselves. However, when these limits exceed the usual variation of values, either social or moral, then real difficulties arise. The majority of normal persons in our civilization tend to accept as desirable values: our customs with respect to security, opportunity for work and personal advancement, religious freedom, freedom to choose an occupation, standards of honor, pride, and honesty, social status, and, in a larger sense, good manners. Such values are usually taken for granted and are maintained without too much difficulty. The normal person will subordinate his momentary desires for what seems to him to be ultimately a greater good or a greater value. If a person is not feeble-minded or demented, he is expected to fit into a general set of values which the community holds. We also assume that if any individual of average intelligence does not conform with these values, he is capable of being educated to meet the standards if his attention is properly directed.

Certain psychopathic personalities show a deviation and oscillation in their motives and, consequently, in value judgments. Such individuals are marked by an inability to apply themselves to routine or continuous work; an inability to judge right from wrong in the same terms that most members of the community use; an inability to fit into the standards, values, and motives which activate their fellows. They are easily discouraged, fre-

quently change occupations, fall easily in and out of love, neglect their children, friends, and relatives, change religious affiliation without good reason, and show other similar character vacillations. These defects may be attributed to a deficiency in motive organization, since they can make decisions and carry through voluntary activity. The direction of the activity varies and is claimed by some investigators to have no fixed relationship to the rest of the personality structure or mental life of the individual. In short, these individuals are characterized by a basic and usually permanent defect in value formation. The same is true for the moral imbecile, whose morals are either absent or so completely distorted that he cannot properly distinguish right from wrong, and, consequently, cannot be trusted to form adequate value judgments.

Disorders of will-act (decision)

That it is easier to "make up our minds" when we are wideawake and in good spirits is obvious. It becomes difficult to make decisions when we are ill, fatigued, or frustrated. We usually say that a person has good self-control and self-discipline when he is able to make decisions in spite of physical limitations due to illness or fatigue. One measure of decision is the time which is involved in the process. It has been demonstrated [11] that decision-time is greatest when there is a balance or near balance in the strength of the stimuli (motives) which are operating. Conversely decision-time is shortened when there is an increasing difference in motives or attitudes which are operating.

Neurasthenia is marked by difficulty or disorder in will-act. Such a patient is possessed by a feeling of fatigue and, with it, indecision. He is unable to concentrate his attention on anything for more than a very short period of time. Realizing that it has become more difficult for him to make decisions, he attempts to compensate for the difficulty with an increased effort and tension. Since this effort cannot be sustained, he will be more irritable and impulsive with respect to the decisions which he has to make. This overcompensation, extra attention, irritability, and impulsiveness add to the initial fatigue which the patient experiences. These have a cumulative effect and set up a greater and greater level of abnormal fatigue which finally results in a more or less complete incapacitation. These circumstances force the patient to substitute quick decisions for accurate, considered judgment. The overhastiness brings with it a feeling of guilt and consequent indecisiveness with respect to future decisions. This uncertainty tempts the patient to avoid any situation in which a decision must be

made, so adding to his feeling of unworthiness and of insecurity. As a rule, such an individual has no real insight into this vicious process and blames himself for his own feelings of incapacity.

There is also a group of individuals whom we commonly call "nervous" and indecisive, although they are not suffering from neurasthenia. The neurasthenic symptoms described above are more or less transitory. They become more acute whenever the individual has to face more than the usual stress of everyday life, and they decrease whenever strains are not imposed on him. The nervous individual continues in his indecisiveness without direct reference to the degree of stress in which he finds himself. An intelligent, nervous person often substitutes for his indecisiveness a feeling of social coercion or consciousness of duty which he attributes to outside sources without making it a part of his own self-consciousness. Such persons can concentrate only with difficulty and are continually fatigued, with poor insight into their own motivation. They are unable to finish actions which they have started, unless they are forced to do so. They are characterized, not only by this volitional weakness, but by restlessness, mannerisms, and the like, which are expressions of their inner indecisiveness. According to Lindworsky,[9] who has made experimental studies of these nervous individuals, their deficiency is not so much in the will-act as in their motivation. If the situation itself exerts compulsion, they are able to make the decision and to carry through the voluntary activity regardless of the presence or absence of any intrinsic worthwhileness which the action may have.

On occasions when we are sad or depressed, we find it difficult to make decisions. There will be a lack of spontaneity in all mental processes which include voluntary processes and, particularly, will-acts. In profound depressions, it is the will-act which is the most affected volitional element. Once a decision has occurred in such depressed patients, voluntary action follows even though in a very slow fashion. Patients who are in, or near, a stuporous depression show a complete lack of voluntary action because motivation is never crystallized into decisions which precede voluntary activity. That they are definitely lacking in decisiveness is demonstrated by the lack of the spontaneous expressions associated with automatic behavior. In such a depressive stupor the mere task of getting up and dressing, which is usually done automatically, requires tremendous effort. The patient intends and desires to arise and go about the day's activity. He will reproach himself for failing to do so, but the decision which will lead to the voluntary action does not occur.

In sharp contrast to the difficulty which the depressed or fatigued indi-

vidual has in making decisions, is the capacity for rapid will-acts seen in the elated or manic patient. The manic is characterized by a high level of optimism with respect to both his own capacities and to his ability to react to any situation which may present itself. He neither realizes difficulties which may arise nor exhibits inhibitions or countermotives. All motives tend to be equivalent; evaluation of them is not important enough to influence his decisions. In fact, every manic feels that the success of any activity which he has decided upon is assured from the very beginning. He makes rapid decisions because the ordinary checks and balances associated with ideas of consequences, difficulty, or distrust do not obtain. His activity is readily distracted from one process to another and, in the shifting activity, decisions are revoked and readily replaced by new ones. Seemingly, there is no consistent and sustained motivation, but only a generalized state of directed voluntary activity, depending upon momentary will-acts, which can be readily upset or substituted by other will-acts. While the decision itself may be altered in nature, there is no evidence of any real pathology in this part of the voluntary process. The patient never experiences any difficulty in handling momentary wishes, strivings, or ambitions, but proceeds directly to a decision in each instance, even though the new decision runs contrary to those previously made. The result is a lack of coordination among the various parts of the will process shown by the entire determining tendency.

An apparent absence of the will-act is seen in tics, obsessional rituals (hand washing), and the like. The patient has a felt "need" for the activity which he describes as forced upon him. The positive motivation leads directly to action—either voluntary or involuntary—without a decision. The patient feels that the process has sufficient motivation, action, and a goal but it lacks any necessity for decision on his part.

Disorders of voluntary action

An example of a disorder in voluntary action, apparently uncomplicated by disturbance of either will-act or motivation, is found in the accounts given by certain persons who attempted suicide.[2] Due to feelings of dejection and hopelessness, self-destructive motives became the underlying theme of voluntary action in spite of all other tendencies or motives and without any real will-act having taken place. Such persons state that they acted as though they were happy and well-contented. They suppressed the usual expressive movements related to their sadness and dejection. They carried out the role of an actor without the advantage of an actor's training.

Their expressive movements, the content of their thoughts, and, consequently, their entire life seemed to them to be artificial. This may be explained by assuming that there was an abnormally intense, powerful, and continuing voluntary action or stream of voluntary activity which carries on until such an individual arrived at the point where there was the physical opportunity for the self-destructive act. No real decision was involved in the selection of either the method or the time of the suicide when the attempt was made. In such instances voluntary action carried the individual to the opportunity without the necessity of a real decision. It must be clearly understood that this mental process is, in all probability, not that which is experienced by any considerable number of those who attempt suicide.

Another variety of disturbance in voluntary action is shown in the outbursts of excitement seen in various groups of psychotic patients, including those in whom there is some brain damage. In a state of furor certain psychotic patients display a stream of voluntarily directed activity in which there seems to be no element of decision or adequate motivation. Such a patient will come out of a depression or stupor; show tremendous excitement associated with destructive tendencies; and then relapse into the stuporous state. During the excitement his activity seems well-directed and coordinated. He cannot easily be diverted from his goal and anyone who attempts to divert him may suffer physical injury.

Disorders of the determining tendency

Motivation, decision, and voluntary action together form the mental experience and behavior called *determining tendency,* which is volition in action. If an individual cannot be aroused to take part in any voluntary action—that is, if he shows no determining tendencies—he is said to be suffering from *abulia.* This state occurs in schizophrenia and in other forms of mental deterioration.

If one gives a variety of psychological tests which involve different sorts of mental operations and then subjects the test results to mathematical analysis, one can obtain evidence of the operation of common "factors." This method was developed by Spearman. The application of the method to the estimate of character traits led to the isolation of a *w* factor. This *w* is held to be "a process of control and organization by a 'will' process over the blind impulses, motives, instincts, and desires, that are the springs of human action." * The *w* factor seems to be descriptive of the determining

* W. Stephenson, "Spearman Factors and Psychiatry," *Brit. Jour. Med. Psychol.,* 1934, *14,* 103.

tendency. Application of tests shows a decline of *w* in melancholia, hysteria, and neurosis. Later studies [6] of personality factors in neurotic soldiers showed that the *w* factor was associated with neuroticism although there was evidence that it was not the simple mental element originally postulated.

There are two processes involved in the establishment of a determining tendency, the internal and external events which occur during the process and which either facilitate or inhibit the tendency. Once a specific task is undertaken and a specific determining tendency is set in action, a person may be (*a*) fully prepared for any other events—facilitating or inhibiting—which may occur; (*b*) he may be only partly prepared; or (*c*) he may be totally unprepared. Lack of flexibility in the determining tendency is spoken of as mental *rigidity*. If the motives are set and the voluntary activity is relatively intense, the individual is said to be showing "a high degree of concentration" on the task before him, or to be "unyielding" in his determination. In some patients suffering from organic brain damage, this inflexibility amounts to automatic behavior. Milder degrees of rigidity accompany one-sidedness in thinking and action, such as one sees in the paranoid patient who treats all situations in light of some particular overevaluated motive of his own. A similar mechanism sometimes operates in either the epileptic or the compulsive neurotic patient.

In another sense inflexibility may be thought of as a form of compulsion in which the determining tendency has become so pronounced that it overwhelms most of the individual's mental life. Schizophrenic compulsion appears to be related to hallucinatory experiences of the patient. In some cases of chronic alcoholism the compulsion grows out of an habitual response which has been favored by the use of alcohol as an escape mechanism. In the obsessive neurotic, particularly, certain activities may become so compulsory that the person develops feelings of powerlessness of will, of being overcome, or of a lack of personal responsibility with respect to the outcome of his own action. The usual reaction of a compulsive patient is one of perplexity—he cannot give an explanation which is satisfactory to himself. He may attempt to account for his action through some sort of rationalization, attributing the compulsion to the Devil, Divine influence, or bad childhood habits. Such individuals become fearful that their compulsions will lead them to injure either themselves or someone else. Therefore, they set up defense actions in the form of continually repeated acts which are ceremonies or symbols serving to block momentarily the overwhelming compulsion of the determining tendency.

A specialized form of compulsion is perseveration. This consists in the tendency to reproduce previously used phrases, ideas, images, or previously executed acts which are irrelevant to the situation at hand instead of those which are relevant. Abnormal perseveration usually occurs whenever adequate performance is for some reason impossible. If such a blockage develops, it sometimes happens that the speech or motor action immediately preceding is repeated over and over again, much as a phonograph record repeats when the needle continues in the same revolving groove. It is as if the determining tendency, unable to continue forward, assumes a circularity. A similar mechanism takes place in a speaker who repeats some sentence or expression when he becomes fatigued or when some question is raised for which he cannot give a ready answer. Perseveration is clearly seen in some forms of aphasia when some response is required which cannot be achieved.

From the point of view of disturbances of volition, perseveration occurs when the determining tendencies for a given task are overcome, blocked, or diverted in some fashion by inhibiting events or ideas. The perseverating individual attempts to respond (there is a tendency toward a genuine decision); he attempts to carry out the required act (there is a tendency to voluntary action); but the act does not succeed because the favoring circumstances for goal achievement (or of insufficient motivation) are lacking. Hence, the previously executed activity is maintained in a repetitive, secondary fashion. The continuing behavior is carried on automatically in the form which is most readily available, but without the formation of a new determining tendency.

Perseveration effects are not necessarily associated with any morbid process or with any particular character trait. They may occur whenever ordinary means of access to a goal are blocked. If a person has the intellectual capacity for appreciating the consequences of his own determining tendencies and persists toward his goals despite blockage or deviation, we say that he is determined. When there is a lack of elasticity and adaptiveness with respect to other inhibiting and facilitating factors, determination becomes inflexibility.

The action of many drugs (alcohol, cocaine, or opium) weakens voluntary activity, particularly with respect to the determining tendency. The addict can make decisions, has motives, and can carry through voluntary action though each element is reduced in strength. Hence, the determining tendencies of the addict become more and more inadequate.

Peculiarities of volition in different mental disorders

Dementia praecox

The earlier manifestations of a developing schizophrenic psychosis include disorders of volition. Decisions become so difficult and motivations are so confused that voluntary action takes on an automatic character. Such patients lack spontaneity and energy and are preoccupied with their own thoughts and feelings to the exclusion of external events. They can carry out in an orderly fashion certain activities demanding voluntary cooperation, if direction and initiative are supplied from without. They can apply themselves quite effectively and persistently to a given problem if properly directed from the outside. In the more advanced stages of the disease the "deteriorated" schizophrenic cannot be aroused to spontaneous activity unless the stimulation is really quite intense and persistent. Most schizophrenics follow orders, but seem to lack the coordinated motivation which carries through the normal volitional activity of everyday life.

The stuporous behavior of a catatonic patient is an exception to what has just been said. In such a stupor there seems to be a balancing out of motives, so that no decisions or voluntary activities result. These patients appear completely blocked by their conflicting motives. They either resist all sorts of stimulation from the outside (negativism), or they totally comply with outside stimulation without taking part in it (waxy flexibility).

When schizophrenic patients are subjected to experimental procedures involving interrupted activity, they have been found to respond to the interruptions somewhat differently than do normals.[14] The normal person will resume about three fourths of interrupted tasks, but the schizophrenic will resume less than one half of such interrupted activity. In addition, the patients often spontaneously interrupt their actions, and even those who finally complete a given task do so only after repeated interruptions of their own making. This finding indicates that their determining tendency is not nearly so strong as that of the normal person with respect to the attaining of a goal. Further evidence to this point may be seen in the observation that certain of the patients easily lose the thread of their thoughts and wander off from the point at issue with little or no reason for the diversion.

Experiments on the level of aspiration exhibited by dementia praecox patients have shown that their "ambition" differs from that of the normal person. Most patients tend to lower their level of predicted success after a failure and raise it after they have been successful. The paranoid patient is inclined to hold fixedly to a high level of aspiration regardless of failure. These level-of-aspiration experiments are essentially related to motivation

and agree with the clinical observations of the motivational defects of such patients.

Neurosis

When level-of-aspiration tests [8] were given to neurotic and comparable normal groups, it was found that neurotic women overestimated their probable future scores more than did the normal women. The difference was not so marked for the male groups. Both normal male and female subjects tended to underestimate their past performance more than did the neurotics. Translating these findings in the terms we have been employing one would say that the neurotic patient shows a defective organization of determining tendency (due to motive dysfunction?) so that the voluntary action does not approximate the goal encompassed by the decision.

Manic-depressive psychosis

The disorders of volition shown by both the manic and the depressed patients have already been commented upon. The increased facility with which decisions are made and changed during manic excitement is peculiar to this disorder, just as the inability to carry through voluntary action is peculiar to depression. The clinical picture of the manic is characterized by an apparent increase in will-acts and by rapid decisions. His decisions are scarcely ever motivated by deliberation and are not affected by inhibitions. Self-control plays little or no role, so that the more elaborate types of volitional activity cannot be effective in controlling either instinctive or habitual behavior. In contrast to the experimental findings on level of aspiration in schizophrenic patients, it was found that in depressed patients neither success nor failure tended to change their rather low level of aspiration as indicated by their own prediction of achievement on the next task.[5] Manic patients were affected by failure and tended to be variable in predicting the degree of success which would attend the next task to be attempted.

General paresis

In the initial stages of general paresis, the developing changes in judgment and sense of values indicate a disorder of motive formation. As a result, the decisions which are made on an inaccurate evaluation of the situation (imperception) lead to incorrect or nonadjustive determining tendencies. As the disease progresses the perceptions and thought processes on

which a decision must be based become more and more inaccurate, so that active decisions for correctly motivated behavior are finally totally absent.

Habitual activity which is accompanied by little or no experience of volition, and which does not depend upon new decisions, is not markedly affected in the earlier stages of the disease process. When generalized motor disabilities become more prominent, even habitual action is disorganized.

The following are examples of the ways in which volitional defects show themselves in general paresis. Before there is any true motor paralysis, the patients exhibit a number of incorrectly executed motor acts. They will put on their coats without their vests, or put on two neckties but forget a collar. When requested to flex their fingers, they will extend them; or when requested to make a kicking movement forward, they kick backward. Such incorrect movements are usually accompanied by movements of other parts of the body, thus resembling the incoordination shown by a growing child. Any incipient movements which are started carry through without correction. This is due to imperception and disorganization of motivation which would serve to correct or inhibit the inappropriate response. Many of these patients give the impression of happy indifference to the world around them. This state of euphoria apparently grows out of the disorders in intellect, emotion, and volition. The paretic does not seem concerned about the possible unhappy consequences of his statements or his actions. The intellectual deterioration, the disorders in the ability to generalize, the emotional instability, all act to disrupt the course of voluntary action. Paresis serves as an illustration of the interdependence of mental functions, in that all such factors are disordered together with volition.

Old age

In old age, even if the habitual behavior of everyday tasks is well preserved, there usually is a marked decline in the number of decisions which are made and acted upon. This decline is associated with both a deterioration in intellectual ability and motivation. New activities demand flexibility and extra energy which are not available in the aged body. As a result, old people experience difficulties in starting new types of activity or in overcoming unexpected obstacles. The difficulty in decision may be accompanied by either stubbornness or undue suggestibility. Stubbornness grows out of the tendency to persist in those types of behavior which are habitual and, hence, more convenient than changing to new attitudes. If there is no adequate habitual response to use, the old person may be unduly suggestible, since motivation is defective so that it is easier to follow a suggestion than

it is to make a decision. Any apparent increase in volitional activity which may occur in the aged is, generally speaking, not a real increase, but the result of a shift from one habitual response to another because of restlessness and changing motivation.

Mental deficiency

In idiocy or the lower grades of imbecility there is little or no development of true voluntary activity, since such activity requires the participation of a fair degree of intellect. High-grade imbeciles and morons show a wide variety of manifestations of volitional deficit and disorder.[7] This variability is due to both the differences in intellectual level and the defective organization of motives. Occasionally, unusual motor ability or some particular skill will conceal part of the volitional deficiency. Habit training is about as much as can be accomplished in the imbecile, since there is too little intelligence to support adequate will-acts or decisions.

In an experiment using the method of interrupted activities, the performance of moron children was compared with that of normal children. The mental defectives were found to resume their initial interrupted activity in practically every instance, while the normals would resume the activity in less than 75 per cent of the tasks.[12,18] If a substitute task was interpolated after the interrupted task, the feeble-minded children would still resume 95 per cent of the interrupted activity, but the normals only 30 per cent. If the substitute activity was placed as closely as possible to the interrupted activity—for example, if the children were told to draw pictures of animals on red paper and, following interruption, were told to draw the animal on green paper—the feeble-minded had a record of 80 per cent resumption of the interrupted activity, while the normals showed very little tendency toward resuming their activity. Evidently, once a determining tendency has been established in a moron either upon his own initiative or that of others, his voluntary action carries on in spite of interruption. This tendency is in contrast to the behavior of the normal child who requires a new decision or a reinforcement of an old one before carrying on after interrupted activity.

Another series of experiments was designed to determine the working ability of different groups of children under conditions of forced activity, and under free working conditions. Again the results obtained in mentally retarded and in normal children differed considerably. Normal children did about three fourths as well under free working conditions as they did under forced conditions; while the retarded children worked only about 10 per

cent as well under free conditions as under forced activity. This finding implies that the normal individual possesses adequate will functions and, hence, the determining tendencies continue freely. However, will capacity and motive organization are either absent or defective in the mentally retarded individual, accounting for part of his low level of performance.

Epilepsy

Certain clinical observers have claimed (without experimental verification) that the epileptic inflexibility in thought and behavior can be related to the patients' inability to adjust their decisions to new circumstances. Some epileptic patients during a psychic seizure or a furor are unable to shift a line of voluntary action or an entire determining tendency which has been set in progress. They cannot readjust this tendency even when new circumstances arise which demand reconsideration. Attempts at diverting such patients, particularly when they are excited, are futile. No new decision can be made until the voluntary act already in progress has been completed.

Organic conditions

It is possible that the disturbance in memory characterizing Korsakoff's psychosis may be directly connected with a disturbance of the will process. These patients show an inability to free themselves from a particular line of thought or activity which is operative. That is, they perseverate. They are incapable of making new associations and new decisions with respect to subject matter which comes up in the course of their activity. If the attendant stimulation is intense enough, their thinking and behavior are somewhat diverted so that part of their falsification of memory is a filling in of material derived from faulty decisions and unbalanced motivation.

Volitional inflexibility and perseveration occur in patients suffering from organic brain pathology. This is associated with other disturbances, such as aphasia, apraxia, and amnesia. States of clouded consciousness following brain injury are marked by perseveration which is part of the general disturbance in mental organization which occurs when brain tissue is damaged.

Summary

The present theories on disorders of will are largely based on clinical observation, with but fragmentary experimental evidence available to verify or evaluate the reported observations. An outstanding defect shown by many

groups of mentally abnormal persons is their inability to respond voluntarily, as does a normal individual. This disorder of volition is very widely diversified in the way in which it appears in both the mental life and the behavior of the patients.

The analysis of volition into motivation, decision, and voluntary activity —the three components making up a determining tendency—can be directly applied in psychopathology. Examples of defects in each of these components and in the entire determining tendency have been presented in connection with different mental conditions. A consideration of the psychopathology of volition as it is exhibited in the different varieties of mental disease sheds some light on the problems involved.

Most of the experimental work which has bearing on volition has been done with schizophrenic patients or mentally defective children. It is to be hoped that future experimental investigation of the complex disorders of volition in other varieties of mental disease will contribute further information.

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SECTION FIVE
DIAGNOSIS
AND THERAPY

Chapter 30 *Psychodiagnosis*

DIAGNOSIS IS THE ART OF RECOGNIZING A DISEASE FROM ITS SYMPTOMS. Psychodiagnosis is the art of recognizing disorders of mental life from their symptoms. The progress of mental science depends on more precise diagnosis and better methods of therapy. Increasingly during the past century the scientific laboratories of universities, hospitals, and research centers have added precision to the art of diagnosis, supplying the physician and surgeon with more exact tests, indicators, records, and assays which provide an ever firmer scientific basis for the art. The pathologist, physiologist and chemist have provided varying degrees of laboratory precision to physical medicine.

The science of experimental psychology might reasonably be expected to give certain laboratory precision to psychological medicine. To a limited extent this has been so in the past, and during recent years it has become increasingly true. Just as diagnosis in physical medicine is more precise than it is in psychiatry so are the laboratory methods of biochemistry more precise than those of psychology. The application of the methods of investigation of sensory capacities in vision and audition is far advanced and quite precise and forms part of the diagnostic art of ophthalmology, otology, and neurology. The methods of investigation of emotion (Chapter 26) are inexact and add only in a sketchy fashion to the art of psychiatric or psychological diagnosis. There are almost no methods so far devised for diagnosis of disorders of volition (Chapter 29) and the "fumbling approach" of the law (Chapter 31) is apparent to all. The contrast between the precision with which the ophthalmologist corrects vision in defective eyes and the method of detection of intent, or the Right-and-Wrong Test of responsibility as applied by the court is obvious.

Psychiatry or psychological medicine has progressed largely on the basis

of careful clinical observation. This observation has, for the most part, taken one of two forms: either a large number of mentally disordered individuals has been studied and compared and conclusions have been drawn from the grouped material, or intensive studies have been made over comparatively long periods of time of a few individuals who showed symptoms and deviations which had a great deal in common. The psychiatrist is, by definition, a physician trained in the arts and sciences of medicine. His primary objective is to relieve the immediate problems presented by each individual patient. He is chiefly motivated by the idea of rendering service to each individual who comes to him asking for help and health.

Experimental psychologists have not been trained or motivated by ideals of individual service. By training and interest their activities have been directed toward the understanding of one or another phase of the mental life of the normal person, or groups of normal persons. During the past ten years there has been increasing recognition by both psychologists and physicians that the methods of clinical and research psychology can be developed and profitably applied to the problems of the mentally disordered person. This new field is undergoing a tremendous expansion. A large part of clinical psychology is concerned with psychodiagnosis.

History

Clinical psychology and psychodiagnostic methods are not new; rather their acceptance has been slow. Kraepelin (1856–1926)[7] became interested in psychology and psychiatry during his last year in school. He adopted medicine as a career with the definite aim of becoming a psychiatrist. Soon after qualifying as a physician he abandoned clinical work for a time in order to do psychological research with Wundt, the founder of experimental psychology. He spent the year of 1882 in Wundt's laboratory. He was dissuaded by Wundt from continuing a career as an experimental psychologist and returned in 1883 to the Munich clinic. However, he began while with Wundt an elaborate series of studies of the effect of drugs and medications upon the simpler mental processes. After ten years, he brought together his findings in a long monograph. During the next thirty-five years, he published or sponsored more than a hundred studies based upon the experimental method, all designed to illuminate the problems of mental disorder by the use of the methods and findings of experimental psychology.

The general theme which ran through most of these experimental investigations was the integration of psychological functions under the concept of mental employment or psychological work. By this he meant the study of

consecutive human performance including the interaction of perceiving, discriminating, remembering, reading, associating, understanding, and acting. He held that these psychological functions were fundamental in everyday human behavior and that their disorders were fundamental to the study of psychopathology.

Making use of the derangements which were produced by drugs, Kraepelin sought to bridge the gap between laboratory experiments and clinical observation. The mental patient often could not, or would not, act as an experimental subject; while the normal person, under the influence of some drug which produced symptoms similar to those of the psychotic, would cooperate. He believed that disorders due to such agents should be set up by measurable dosages and described and measured in psychological terms. In contrast to most investigators he was chiefly interested in how the disordered individual worked rather than in what he did.

At the time Kraepelin started his work in psychopathology, experimental psychology consisted chiefly of the study of sensory functions and the relationship between physiological activity and psychological occurrences. Psychiatry was largely an observational procedure in which every leader in the field had created a system of classification without too much regard to the systematic efforts of others or to systematic efforts of previous generations. Kraepelin did two things which were of first importance. He made use of the methods of experimental psychology of his day, developed new methods and procedures, and applied those methods to the study of the psychiatric patient. Second, he went on from the experimental studies and clinical observations to build up a system of classification of mental disorders which has been more widely accepted than any other and which today is still considered the best available.

The methods used by experimental psychology in studying sensory abilities and defects produced findings which were of secondary importance to psychopathology. Kraepelin quickly passed by these physical experiments to develop new and more pertinent methods. He devised the *sustained task* which showed wide variation among different mental patients. The sustained task was not regarded as a routine response which was wholly initiated and controlled by the stimulus, but rather as a type of work or action voluntarily laid out and governed by the organism itself. The loss of effective government, whether due to drugs, neurosis, or psychosis, was considered to be open directly for experimental determination and measurement under controlled conditions.

The psychological studies which he sponsored, as well as others which he cited and integrated in his writings, provided a notable increase in fac-

tual knowledge concerning fatigue and recovery, practice and learning, motivation to activity, memory, association, and sleep. The effects of many drugs were studied in both normal and psychotic persons. He extended the laboratory methods of psychology to the study of psychotic patients, investigating, for example, the handwriting of the manic-depressive in elation, depression, and remission; perceiving, observing, and remembering in schizophrenics and paretics; the reactions of epileptics; and the character and rate of ideational flow in manic states. Today, most of this material is accepted as part of the routine procedure followed in clinical examination and testing. These tests, however, really grew out of the long, exact, and difficult research carried out by Kraepelin and his students.

In 1880 Francis Galton[3] (1822–1911) reported the first systematic study of the associations which may result from the exposure of a single word. His experiments were conducted upon himself. He would allow his mind to play freely for several seconds on one or two ideas and then, while the traces of these ideas were still lingering, he would turn his attention upon them to arrest and scrutinize the exact appearance of the associations which seemed to cluster around the ideas. This study gave him an interesting and unexpected view of a number of the operations of the mind and of the obscure depths at which they took place, of which he had been little conscious before. "The general impression they have left upon me is like that which many of us have experienced when the basement of our house happens to be under thorough sanitary repairs, and we realize for the first time the complex system of drains and gas- and water-pipes, flues, bell-wires, and so forth, upon which our comfort depends, but which are usually hidden out of sight, and of whose existence, so long as they acted well, we had never troubled ourselves." *

On the basis of this exploration of associated ideas, Galton then built up a list of seventy-five words, each of which he wrote on a small piece of paper. He would expose each word momentarily, holding a stop watch in his hand, which he started at the same time the word was exposed. After two or three associations had occurred to him, he stopped the watch and noted down the associations and the elapsed time. He did this on four separate occasions under very different circumstances and at an interval of about a month between each experiment. He found that four repetitions of the 75 words gave rise to 505 ideas and 13 instances of blockage in which no idea occurred during 4 seconds. Of the 505 ideas, 216 were the same, which indicated that out of every 100 words, 23 gave rise to the same association in every one of four trials. He concluded that the roadways of

* F. Galton, "Psychometric Experiments," *Brain*, 1880, *2*, 151.

the mind are worn into very deep ruts and that the mind is perpetually traveling over familiar ways without the memory retaining any impression of its excursions. "It is apparently always engaged in mumbling over its old stores, and if any one of these is wholly neglected for a while, it is apt to be forgotten, perhaps irrecoverably." *

Galton analyzed so far as possible the time of his life at which each of the associated ideas was first attached to the stimulus word. There were 124 cases in which such identifications could be made satisfactorily. Of these, 39 per cent were first set up during boyhood and youth, 46 per cent during subsequent manhood, and 15 per cent by quite recent events. Those set up during boyhood and youth tended to occur three or four times in the four experiments, while those associated with recent events tended to occur but once.

Galton summarized his experiments as follows:

> I have desired to show how whole strata of mental operations that have lapsed out of ordinary consciousness, admit of being dragged into light, recorded and treated statistically, and how the obscurity that attends the initial steps of our thoughts can thus be pierced and dissipated. . . . Perhaps the strongest of the impressions left by these experiments regards the multifariousness of the work done by the mind in a state of half-unconsciousness, and the valid reason they afford for believing in the existence of still deeper strata of mental operations, sunk wholly below the level of consciousness, which may account for such mental phenomena as cannot otherwise be explained. We gain an insight by these experiments into the marvelous number and nimbleness of our mental associations, and we also learn that they are very far indeed from being infinite in their variety. We find that our working stock of ideas is narrowly limited, but that the mind continually recurs to them in conducting its operations, therefore its tracks necessarily become more defined and its flexibility diminished as age advances.†

These studies led Wundt and Kraepelin to start word-association experiments. Kraepelin directed the work of several of his colleagues toward the use of this procedure in the exploration of mental disturbances and in the differentiation of clinical types.

The association method was further developed by Jung [4] and his students in order to understand particular pathological processes, especially mental conflicts. Using the method, they were able to discover and isolate emotional complexes which otherwise had not been accessible. The new departure which Jung developed was the application of this method to the elucidation of unconscious mental processes. His assumption was that in

* F. Galton, *ibid.*, 155.
† F. Galton, *ibid.*, 162.

the activity of unconscious mental associations there is mirrored the whole psychical essence of the past and of the present, with all its experiences and desires. Over a period of some fifteen years, studies were made of the associations of normal subjects, imbeciles, epileptics, hysterics, and various psychotic patients. Accompanying psychogalvanic changes, muscular movements, and respiratory changes were also investigated.

In 1910, Kent and Rosanoff [5] compiled a list of one hundred words which were found to be suitable indicators of emotional complexes for use with English-speaking psychiatric patients and which were intended to bring out differences between such patients and normal individuals. They gave this list to one thousand normal people, recording in each instance the first word which was given in reply to the stimulus word. They tabulated these responses and published a series of frequency tables in which they recorded the stimulus word together with the frequency of each word occurring in the responses of the one thousand persons.

Following the determination of the standard responses of normal persons, the test was given to 247 psychiatric patients. The comparison between the normal and the psychotic groups may be presented as follows:

	Common Reactions Per cent	*Doubtful Reactions Per cent*	*Individual Reactions Per cent*
1000 normal subjects	91.7	1.5	6.8
247 psychotic subjects	70.7	2.5	26.8

Common reactions consisted of those which were found to occur frequently in the normal group as shown by the larger percentages in the frequency tables. Doubtful reactions referred to hesitations, repetitions of the stimulus word, or of the previous response, whereas individual reactions were those which were not found in the frequency tables. The comparison disclosed more individual reactions in the mental patients than in normal persons. This analysis indicated that the normal range of associations is restricted within a rather limited series of responses. The association method did not provide a sharp distinction between mental health and mental disease; rather, it demonstrated that there was a gradual shading of disturbances in the associative process from the normal to the grossly pathological state.

Binet [2] (1857–1911) worked on many aspects of experimental psychology. His first book was on the psychology of reasoning and was based largely on hypnotic experiments. This led him on into problems of personality, particularly as stupidity and genius are related to personality. In 1903 he published a monograph on the experimental study of intelligence. The

now famous Binet-Simon test for the measurement of intelligence followed as a list of performances in 1905 and as a scale in 1908. Practical experience had shown that some portions of the test were more difficult than others and that the tests could be experimentally arranged according to age levels from 3 to 12 years. In this fashion a child's "mental age" was the level which he attained on the scale. The scale was translated and adopted for American use by Goddard in 1910. The invention and development of the Binet-Simon Scale were the beginning of intelligence testing and the one psychodiagnostic procedure which found quick and universal acceptance. Many attempts have been made to apply the essential idea of the intelligence test to other aspects of mental life, but none have been so successful or so widely used.

Evaluation of the patient

Before considering the various procedures which are used in present-day psychodiagnosis the problem of the relation of the patient to the tests should be considered. Abnormal persons certainly present difficulties to one who wishes to obtain information from them. They may be very stupid, overwhelmed by anxiety, desirous of concealing their true state, only partly conscious, irrational, distractible, or otherwise generally difficult. Their verbal productions vary between the nil of the mute catatonic to the endless rambling of the senile, the volubility of the manic, and the infinite detail of the obsessive neurotic.

Furthermore there is the problem of rapport—the mutual liking or disliking of patient and examiner. The mental patient is sick and his emotional relationship to those about him is unreasonable and almost animal-like. Just as a dog after a quick sniff accepts or rejects a stranger so the patient after a glance accepts or rejects an examiner. Since the psychological examiner is dependent on the willingness of the patient much time and attention have to be given to the acquisition of the "clinical touch," the knowledge of the little personal behaviors and remarks that help in obtaining the cooperation of patients. It was pointed out in Chapter 27 that of 827 intelligence tests given to mental patients by competent examiners only two thirds were on later review thought to be representative of an adequate and accurate test.

There is no accepted set of criteria for appraising either the validity of the examination or the competence of the examiner. Rosenzweig [12] lists as among the desirable personality factors of the good examiner the following: (*a*) much interest in people without morbid curiosity particularly as to their

sexuality; (*b*) a capacity of understanding or empathy for others; (*c*) based on sensitivity and cultural background, the ability to appreciate personal interrelationships; (*d*) freedom from personal guilt or anxiety which might be projected on the patient; (*e*) tolerance, that is, interest in understanding without making moral or ethical evaluations.

Since there is such a great variation among different sorts of patients and as to the competency of examiners the erroneous idea has been given currency that mental patients are quite variable, indeed, that the variability is part of the abnormality. As a matter of fact the individual variability of mental patients is in all probability in no way different from the variability of normal persons. Certainly variability of itself, is not a criterion of abnormality.

The direct approach in psychodiagnosis

Most of the information about the mental life of abnormal persons comes from personal interviews or from the study of autobiographies. The direct questioning of the mental patient provides a great deal of evidence concerning his mental status. It must always be borne in mind that a mental patient is mentally sick, which implies that he either cannot or does not understand his own psychopathological symptoms. If these individuals were able to understand their mental anomalies and could adequately explain them to others, abnormal psychology would be a fairly easy subject. Actually, any material obtained in interviews and from autobiographical accounts must be interpreted by way of comparison with the histories of other people who have shown similar symptoms. This process of evaluation of such material requires extensive experience which can be gained only through personal exploration of the problems and life histories of many mentally deviant persons.

The procedure in obtaining psychiatric data during an interview may be either direct or indirect. When the direct method is used, questions and answers are relied upon to bring out as much relevant information as possible. When the indirect method is used, the patient is encouraged to talk without any particular guidance on the part of the interviewer. It is expected that, if the patient talks long enough, relevant information will be obtained which could not be reached by direct questioning. Since each patient offers a special problem, it is essential to use very flexible methods of interviewing. It may be possible, for example, that the patient is depressed and tends to ascribe his depression to a death in the family. In such a case, the interviewer will attempt to clarify the psychological relations which existed

between the patient and the deceased relative. In questioning some other depressed patient, it may be advisable to ignore all the details of family relationships. Obtaining information relevant to the patient's basic problems is a real art.

Psychological tests

There are literally hundreds of tests which have been used for psychodiagnostic purposes.[14] From all of these we will consider certain of the tests of intelligence, of vocational aptitudes and interests, and of personality. (Tests and measures of deterioration have been presented in Chapter 27).

Tests of general intelligence

Among the first things one asks about any person are which sex, what age, and how bright. Obviously the intelligence test is of first importance in the diagnosis of mental defect (Chapter 17) and of value in attempting to approximate the amount of deterioration which a person may exhibit (Chapter 27).

Beyond their use in mental defect and deterioration, intelligence tests have found other uses. If the psychological difficulty is related to vocation it is necessary to find whether or not the intelligence of the person in question is appropriate to the job. One can be attempting to do work beyond one's intellectual capacity or one can be attempting to hold a job below one's ability. In the first instance frustration and anxiety may follow and in the second, boredom. If a young man or woman without any particular vocational wish or purpose applies for guidance, an intelligence test is the first standard procedure that will be used in an attempt to provide adequate guidance.

The Stanford-Binet and the Wechsler-Bellevue tests are composed of many subtests which provide samples of many kinds of ability and of different approaches to problem solution. The careful clinician observes how each subtest is done. He can often arrive at an opinion of specific defects in performance or ability which are of both diagnostic and therapeutic value. For example, an occasional individual, otherwise bright and competent, is grossly defective in the ability to read and to comprehend what he has read. He may not himself realize his defect and so will find himself in trouble because the job he is attempting to do, and which is easy enough for the ordinary person of his school achievement, is beyond him. Certain subtests will indicate the reading defect. Special tests of reading ability can then be

employed to determine the basis for the difficulty. Further psychological analysis may indicate that the reading difficulty is associated with some traumatic experience, phobia, or the like. Therapy can be directed to the basic psychological trouble or remedial reading in the sense of special training can be followed as a therapeutic procedure.

In Chapter 28 the problems of amnesia and aphasia were considered. In other chapters it has been pointed out that apparent defects of memory are frequently encountered among mental patients. The problem is often one of determining whether the defect is part of a more generalized "dementia" or a specific loss. Various tests such as the Wechsler Memory Scale have been standardized. The score on the memory test can be compared to the score on the general intelligence scale, so providing a more adequate diagnostic picture. Mental abilities other than reading and memory can be isolated in the same way and contrasted to general intelligence. In other words, the test of general intelligence affords the clinician with two things, a reliable index of general intellectual ability and a series of indicators which may lead to a diagnosis of specific disabilities.

Vocational aptitude and interest tests

Psychologists have developed a wide assortment of tests indicative of vocational aptitude or interest. Such tests are for the most part based on either of two basic procedures. The test may take small portions out of the job or vocation, which portions have been found to be representative of the larger elements of the job. The performance on these small portions is considered to be indicative of the general aptitude. The second method (Strong Vocational Interest Inventory) is to draw up lists of contrasted statements representing likes and dislikes, approval and disapproval, of areas of occupation, amusements, general activities, and personal characteristics. There are no "right" or "wrong" answers in such a test. Rather the pattern of like, indifference, and dislike for the individual is compared to the pre-established patterns of a wide variety of occupational groups such as those of the artist, architect, physician, lawyer, banker, teacher, and so on. If the interest pattern of an individual is similar to that of some occupational group, the chances are that he will do well in that occupation.

Diagnosing the aptitudes and interests of an individual is part of the general problem of understanding the unusual personality. In addition to the direct value of the tests for guidance, it frequently happens that peculiar or unusual answers or interests will be shown by the tests. Since vocational tests have been well standardized the odd responses are usually quite appar-

ent. Further analysis of these peculiarities, like the follow-up of the subtests in the intelligence scales, gives information of value in diagnosis.

Personality inventories

The usual way of finding out about any person is to interview him, asking him a long series of questions. Since the questions do not differ too much from one patient to the next, various attempts have been made to standardize the questions, print them as a list, and have the patient check the appropriate answer, "Yes, "No," "Don't know."

This method assumes that each patient reads and understands each question in the same way; that the patient tends to answer truthfully or falsely with some degree of regularity; and that the patient knows the answer. These assumptions are only partly true. Experience has demonstrated that the collected, averaged data obtained by this method from groups of individuals throw light upon the conscious trends of thought and beliefs of the particular groups who have answered the questions. One might find, for example, that paranoid individuals tend to answer questions in a way which is in sharp contrast to the answers given by those of cycloid personality. If this should be true, a start can be made toward a factual understanding of the basic differences between the two attitudes.

The Bernreuter Personality Inventory is one of the most frequently used procedures of this sort. It consists of 125 simply worded questions to be answered "Yes," "No," or "?". It is intended to assess various personality traits and to indicate any important departures from normality. This inventory can be quickly administered either to an individual or a group of individuals. When scored it gives a conscious self-portrait. If the score is within the normal range and there is little or no other evidence of mental abnormality, the individual may be dismissed as no "mental problem." If given to a group, those persons obtaining scores outside the normal range may be considered as candidates for further diagnostic study.

The Minnesota Multiphasic Personality Inventory consists of 550 cards which are to be sorted into trays labeled "True," "False," and "Cannot Say." On each card is printed a question or statement, covering a wide range of topics from physical condition to moral and social attitudes. The cards cover such items as whether the individual blushes frequently, whether some members of his family have quick tempers, whether he likes movie love scenes and so on. The critical or unusual responses are separated from the subject's sorting and are tabulated. The tabulations are compared to typical patterns which have been established for groups of patients. Patterns

have been established for Hypochondriasis, Depression, Hysteria, Psychopathic deviance, Paranoia, Psychasthenia, Schizophrenia, Hypomania, Masculinity-Femininity, Carelessness, Evasiveness, Attempting to be socially acceptable, and Attempting to minimize or exaggerate his symptoms.

In many instances both the direct face to face interview as well as the personality inventory fail to bring out information on which to proceed to a diagnosis. It may be that the interviewer does not know what questions to ask, or when and how to ask them. The result will be that the patient, who lacks personal insight, never gives the really relevant information. Other patients have told their story so often and have answered so many questions that they "know all the answers." Still others will present a well-defined problem ("Doctor, I walk in my sleep and I don't know why.") and all direct questioning or filling out questionnaires fails to bring out pertinent information. For such reasons projective methods are receiving increasing attention in clinical psychology and psychiatry.

Rorschach's diagnostic test

The account given by any person about himself in an interview or on an inventory can never be a complete story of his personality. Many of the forgotten memories, attitudes, motives, desires, and wishes enter into his report without any conscious awareness of either their entry or their effect upon his report. Seldom does such a directly obtained account contain material relevant to the fantasy life of the individual. There is much evidence to the effect that unconscious (or not fully conscious) attitudes, motives, or wishes play a significant role in the mental life of both normal and abnormal persons. To get at such material, several methods have been devised. These are called projective techniques, in that they permit the individual to project his mental processes on to an unorganized or ambiguous perceptual field.

A method which is widely used today is the Rorschach [11] psychodiagnostic test. Hermann Rorschach, a Swiss psychiatrist, published in 1921 an elaborate study of the responses given by both normal and abnormal persons in the interpretation of specially prepared ink blots. Some of the Rorschach ink blots are black and white, some are black, white, and red, and some are multicolored. These ink blots are presented one at a time to the individual being examined. As each is presented, the person is asked: "What might this be?" The explanation, name, or story which the person gives in response to each of the blots is recorded. The given combination of responses was related by Rorschach to all other information available about the subject's personality. Since the ink blots themselves are meaning-

less, the procedure elicits an individual's perceptual and imaginative organization. This process frequently offers clues to the personality structure which are not otherwise available. Those who have followed Rorschach in the use of this procedure hold that the method does not reveal an actual

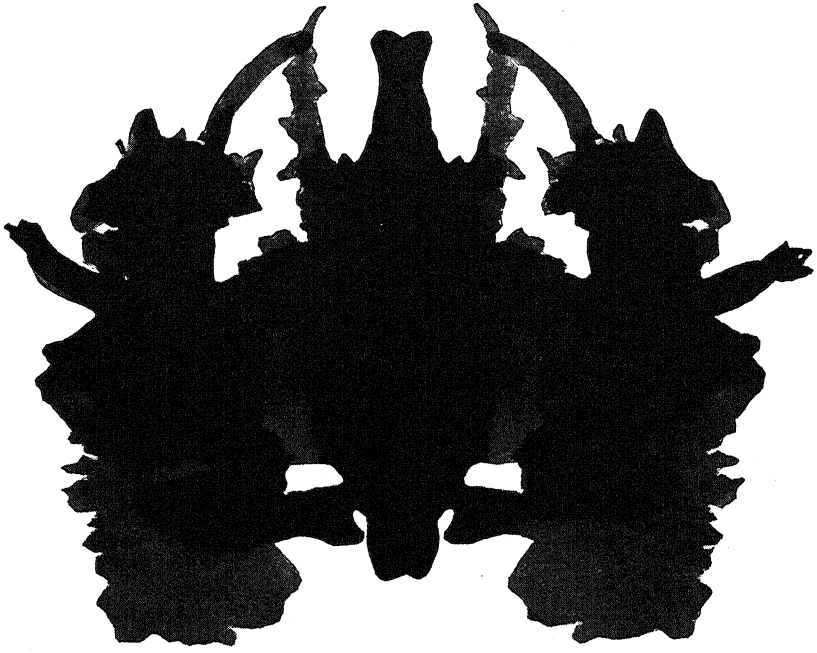


Fig. **38.** Ink-blot similar to those used in the Rorschach test.

personality or behavior picture. It is comparable to an X-ray plate in that it shows the underlying structure. Information concerning this underlying structure makes behavior and personality more understandable.

Klopfer [6] formalized the Rorschach test and the methods of interpretation in a fashion which is used by many contemporary clinicians. He emphasized that the responses are indicative of the balance between spontaneity and control, of introversion-extroversion, and of the emotional ties between the inner and the outer life aspects of the individual. Some psychologists have questioned both the basic nature of these personality configurations and the need of formalizing the method to such a degree. They have held that the lack of formal classification and statement has value in itself; that the freedom of expression and freedom of interpretation are of more importance than any formalized or standardized procedure of interpretation or scoring.

The Rorschach method has been used in a variety of psychopathological individuals as well as with many normal persons. Beck [1] has shown that the schizophrenic patient tends to report a large number of inaccurately perceived forms and gives unusual rather than popular responses. These results are in line with the bizarre and odd nature of schizophrenic thought and perception as has been demonstrated by many other varieties of psychological study. In depression there is slow reaction time, little originality, little attention to movement or color, and a high percentage of obvious replies. These responses are essentially a reflection of the general retardation which dominates the whole mental life of the depressed patient. In the manic conditions one finds an increased number of responses, more attention to color than to movement, and a higher proportion of responses based on sharply and accurately perceived forms. In neurotics there is a reduction in the number of interpretations indicating movement, a reduction in the form-color responses, an increase in responses determined principally by form, and evidence of *color shock*. Color shock is shown by disturbances of reaction time, exclamations, or peculiar replies given to the ink blots which contain color in addition to black and white. This finding is regarded as an important diagnostic sign of neurosis, particularly useful in distinguishing neurosis from schizophrenia.

Piotrowski [9, 10] believes that the types of response given by patients suffering from organic brain disturbances are different from the responses of those who are suffering from neurosis or psychosis. Among the characteristic differences he has found that the organic cases give a very small number of responses, together with slow reaction time, almost no movement responses, few of the popular types of report, a tendency to name colors, and observable evidence of perplexity or self-distrust during the test.

The Rorschach method is widely used. There is some debate as to its true validity. In the hands of an experienced clinician the material provided by the patient often is of undoubted diagnostic value, while at other times it fails to reveal anything that is of significance. It is essentially an artistic method rather than a scientific method. It is possible that basic research will replace artistry with experimentally determined fact but the research remains to be done.

The Thematic Apperception Test (TAT)

Another example of projective method is that which was introduced in 1935 by Murray [8] and Morgan, and called by them the Thematic Apperception Test. Their material consists of a series of twenty pictures which the

person being studied is asked to use as a starting point for making up a plot or a story. The test is based upon the idea that when a person interprets a pictured ambiguous situation he is apt to expose hidden aspects of his own personality. The stimulus pictures are so composed that there are one or more human figures portrayed on each. The subject can identify himself with any one of these figures in each situation. While he is absorbed in his attempt to explain the picture, he may cease to be conscious of himself and

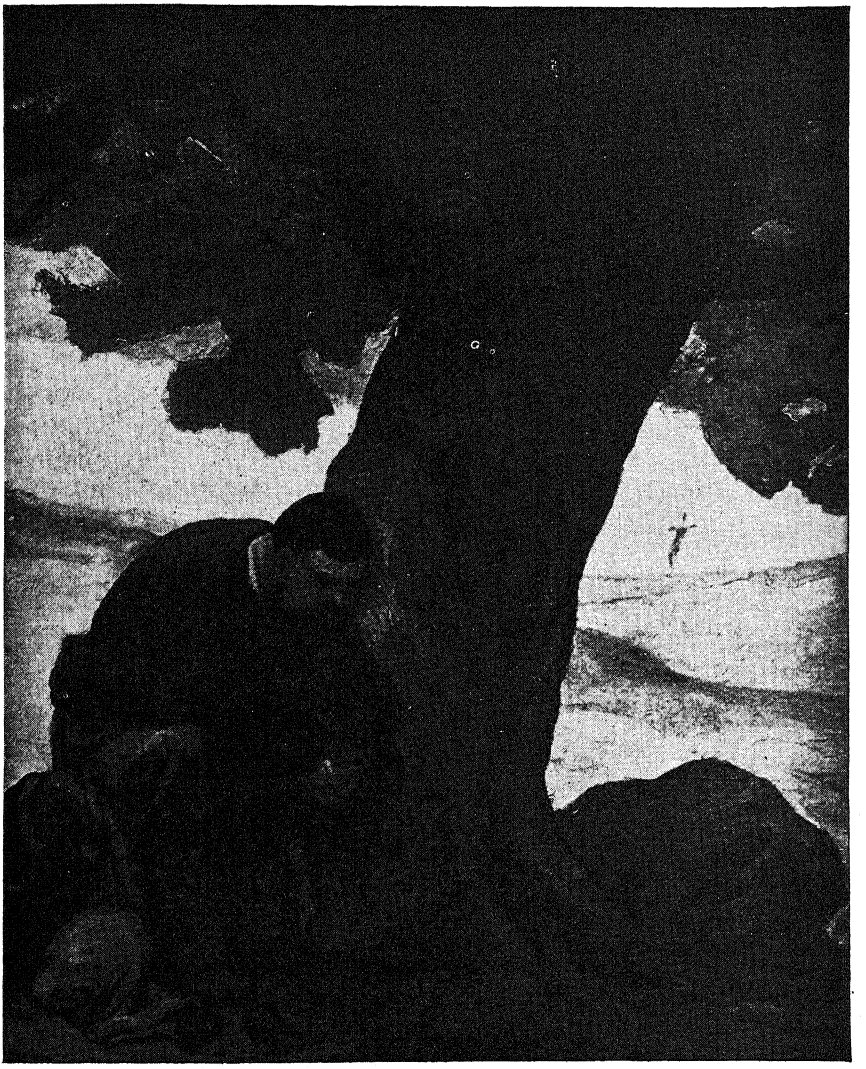


Fig. 39. Picture similar to those used in the Thematic Apperception Test.

of the scrutiny of others. Therefore, his story will provide the examiner with some knowledge of the wishes, fears, and past experiences which he would otherwise conceal. The subject may be asked not only to make up a story as to how the scene depicted on the picture came about, but also to tell what is going on at the moment, what the characters are feeling, and what the outcome will be.

The results obtained by this procedure have been treated by different investigators [13] in different ways. Some have noted the character of the story which is told. Others have analyzed the language which was used in relating the story. Still others have interpreted the plots produced by the subject in order to understand his conscious and unconscious fantasies. Rosenzweig's method [12] of scoring the TAT assumes that the stories produced may be treated as a composite portrait of the subject to yield one composite projective picture of the inner personality. In this procedure the stories are read and reread carefully by the examiner. A descriptive analysis is then made, attention being given to the (*a*) identification (or lack of it) by the subject with the character portrayed on each picture, (*b*) the manner in which the characters are described, (*c*) the needs or goals around which the subject builds his stories, (*d*) the distortions or blockings revealed by the stories, and (*e*) the endings (happy, realistic, sentimental) which the subject provides to his stories. This analysis is correlated with other diagnostic test material as well as with the life history of the subject. Like the Rorschach test the diagnostic value of the TAT depends on the experience and artistic, clinical skill of the clinician. In general it has been found that in the application of the test to persons suffering from mental disorders, the different diagnostic groups tend to produce stories which are in accordance with their entire personality structures, distorted though they may be.

Rosenzweig Picture-Frustration study [12]

This test is composed of a series of twenty-four cartoon-like pictures. Each picture depicts two persons who are involved in a mildly frustrating situation of common occurrence. One person is shown as saying something which either frustrates the other or describes what is frustrating him. The subject is instructed to examine the pictures one at a time and write out in a space provided the first reply that he would make if he were in the depicted situation. Rosenzweig has pointed out that people may be divided into those who are *extrapunitive, intropunitive,* and *impunitive.* The extrapunitive person insists on the frustrating obstacle and turns his blame and hostility on someone or something else expecting the solution from them.

The intropunitive person belittles the frustrating circumstances and tends to blame or censure himself, while trying to make amends, out of his own generalized guilt feelings. The impunitive person minimizes or denies the frustrating obstacle, evades the frustration by holding everything unavoid-

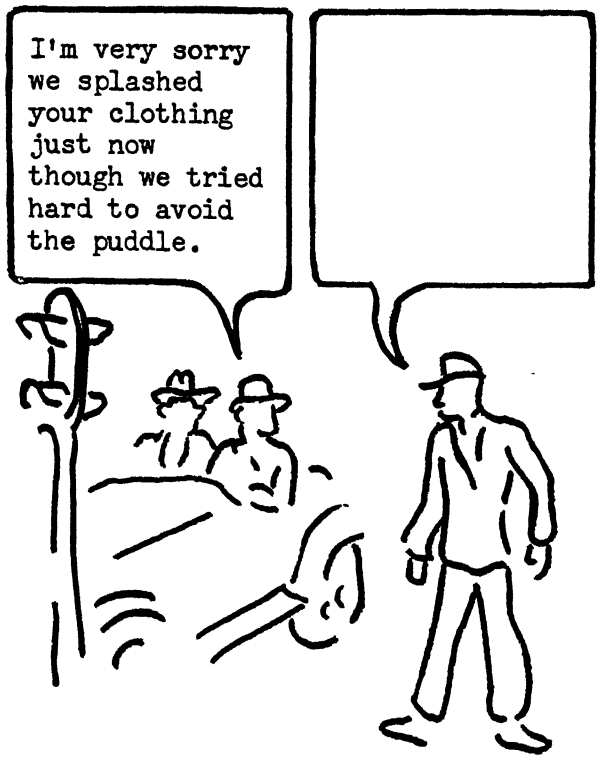


Fig. 40. A cartoon from the Rosenzweig Picture Frustration Study.[12]

able, while expressing the hope that time or expected occurrences will bring about a solution.

These characteristics are very revealing of basic personality patterns. This test does give valuable information on these patterns and contributes accordingly to the process of psychodiagnosis.

General observations

We have considered only a few of the psychodiagnostic procedures and those but briefly. Several points stand out clearly. (*a*) The clinical psychologist has at his disposal a wealth of tests and procedures on which he can draw to analyze and evaluate the mental life of any individual. (*b*) The

methods have differing degrees of reliability and validity. Some are well grounded in a firm scientific basis. Others are almost completely dependent on the experience and clinical artistry of the examiner. (*c*) No one test or procedure is sufficient to give very much understanding of the entire personality together with its assets and liabilities. (*d*) Psychodiagnostic methods are useful in so far as they fit into a fairly well-unified conceptual approach to the problems involved. For example if one accepts as axiomatic the assumptions of Freudian psychoanalysis then tests like the Stanford-Binet or the Strong Interest Blank have little place while the Rorschach or the TAT becomes more meaningful. (*e*) It has been demonstrated that the more adequate and insightful the psychodiagnostic evaluation the better the approach will be to the problem of psychotherapy.

Summary

Psychodiagnosis is the application of more or less well standardized procedures to the abnormal person with the purpose of determining the essential nature of his difficulty, whatever it may be. Experimental psychology has furnished a basis for psychodiagnostic methods in the same way that chemistry and physiology have done for general medicine. The application of these psychological methods constitutes much of clinical psychology.

There are many specific tests available. Most frequently used are those of intelligence, of vocational aptitude, of deterioration, and of personality. Some tests, particularly those of intelligence, have a well-established basis of experimental verification. Others, such as the TAT, have little or no experimental verification. No matter whether the test procedure is experimentally verified or not, the clinical application of the tests as psychodiagnostic procedures depends largely on the experience and artistic ability of the examiner. No test is of any particular value when given and interpreted by an unskilled or poorly trained examiner. In psychodiagnosis no one test is sufficient to carry the entire load. The more test material available and the better it is correlated with all available evidence the more accurate and useful the diagnosis will be.

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SECTION FIVE
DIAGNOSIS
AND THERAPY

Chapter 31 *The Law*

THE FACTS OF MENTAL ABNORMALITY AND THEIR DIAGNOSIS AND TREATment have been presented thus far as matters of science and of medicine. This presentation was justified by the greater understanding of abnormal behavior and experience provided by such an organization. Other ways of organizing and dealing with such facts have existed for centuries and are still employed by most of humanity. Ordinary common sense says that abnormality of mind is a matter to be referred to the court for disposition and to religion for explanation. The medical scientist points to the greater recovery rate brought about by his methods and says, "If better health and longer life are of great value, then the procedure of medical science has been more productive than any other method used in the recent past in dealing with the problems of mental abnormality."

The law may be thought of as the codification of human experience or as a set of rules, regulations, and commands by which mankind governs personal conduct. The court is an assembly of persons who "test" human behavior in light of the code, commands, laws, or regulations and decide what the future status of a person or persons should be.

The basic assumption of the jurist is and has been that man was possessed of body and mind and that within all reasonable limits each mind is a free agent. When an individual behaves peculiarly or irrationally, his mind is "affected." It may be affected by evil designs, evil influences, by bodily illness or weakness—but the result is that the person is of unsound mind. It has been further assumed that degrees of unsoundness (of insanity) may prevail, that the mind may be sound on all but one or a few points ("possessed of an insane delusion"), or that the mind may pass very rapidly from sanity to insanity and back again ("done in a moment of temporary insanity"). The idea of "mental disease" in the same sense as physical

disease, with a determined cause, course, and outcome, is a new and novel concept which only in very recent history has been considered by the jurist.

From the viewpoint of medical science a court is an assembly of persons who test and classify human behavior and determine, prescribe and, within limits, enforce therapy. So far as abnormal psychology is concerned the court practices psychodiagnosis and indicates or orders psychotherapy. The clash between the psychiatrist and the lawyer is, in such terms, clear. The psychiatrist comes into the court with a relatively new set of psychological ideas, concepts, and tests. The court rests comfortably on the knowledge that the vast majority of human beings have received "justice" (correct diagnosis and therapy), while the ideas of the psychiatrist are not above argument and are not even universally accepted among other such specialists.

So far as insanity is concerned, the law is primarily interested in (*a*) responsibility (punishability or liability) for crimes, and (*b*) mental competency with regard to wills, torts, and contracts. It has long been recognized that mental derangement may change a person's legal status so that he cannot be held responsible for his action. It follows that the law is concerned only with those mental conditions which affect responsibility and thus produce incompetency. Psychology and psychiatry differentiate patterns and types of mental disorder with different degrees of disturbance in function. The law tries to place people into one of two groups, sane or insane. The imaginary line separating the two groups is established by tests of responsibility and competency. A person is "legally insane" only if he fails to meet the standards that have been accepted by the courts.

The legal viewpoint is not significantly different from the popular concept of mental disease. The man on the street thinks in terms of a sharp division between sane and insane and is not concerned with the amount or nature of the psychological deviation. When someone in his family is acting queerly, he asks, "Tell me, Doctor, is she sane or insane?" Habits of thought change very slowly in this respect. Although many physicians and psychologists have worked toward the popular acceptance of the pathological nature of mental disorders, the average person still believes that insanity is a disgrace or, at least, an unmentionable subject. If one of the members of his family develops a mental disorder, he is inclined to think that his whole family is stigmatized.

There are certain legal decisions that are classics in the field of medical jurisprudence, which have established basic principles from which subsequent decisions and even modern practices have developed. Only by referring back to these early cases are the present-day legal concepts under-

standable, because court procedure and legal form are based largely upon precedent. Reliance on precedent produces an inertia in the law that is desirable in some respects. In the field of mental abnormality this inertia results in a slow acceptance of the more recent knowledge of mental abnormality.

Since the law and the court do offer a working and generally accepted system of psychodiagnosis and treatment, this system should be considered from the viewpoint of eclectic abnormal psychology. The legal system of necessity deals with every variety of human behavior. We will limit ourselves to the places where mental disorder most clearly becomes a matter of legal concern, that is, in torts, contracts, wills, and crimes.

Judicial tests of mental competency and responsibility [3]

The law does not attach any significance to mental deficit or mental illness of themselves. It does attach significance to the degree of mental disability as it affects behavior. If the disability falls beyond some imaginary line then the person is incompetent or not responsible. The judicial tests for mental competency postulate an independent mind and attempt to define the strength of mind necessary for understanding. Since mind is incorporeal and cannot be subjected to direct observation, the tests have to be subjective.

The understanding test

In contract cases the *understanding test* is usually applied. It is usually held that a contract cannot be set aside on the ground of insanity or mental weakness if the person had sufficient mental capacity to understand in a reasonable manner the nature of the particular transaction in which he was engaged and its consequences and effects upon his rights and interests. Such a person has the capacity to make a contract if he has sufficient mind to be capable of transacting ordinary business affairs or pursuing his own ordinary business in his usual manner. He should be capable of understanding the nature and effect of the one particular act or transaction which is challenged.

In trying to apply this test courts have held in some cases that the person must have "understanding," in other cases "full understanding," or "understanding in a reasonable degree," or "judgment and understanding." In other cases "deliberate judgment" or "reasonable judgment" is required as part of understanding. In still other cases the person must have the ability to "comprehend" or "clearly comprehend" the "consequences," "the effect," or "the nature and effect" of the transaction.

After surveying the judicial tests of understanding Green [4] concluded that frequently an inarticulate or unexpressed standard is used. Even though certain tests of competency may be quoted, the decision rests upon principles which cannot be verbalized simply. The decision is often based on a constellation of factors rather than on any one particular fact. Commonly, the constellation is that of fraud and undue influence, with mental incompetency. Different types of evidence are fitted together and are all weighed in the final decision, even though the amount of evidence on any one line would not have been sufficient to warrant the decision. As Green says, this is one of the rare instances in which the law adds an "almost" to an "almost" in coming to the final result.

Right-and-wrong test [7]

A person is not responsible for an offense if at the time it was committed he was so mentally disordered as (*a*) to lack the knowledge that the act was wrong, and (*b*) in some states of the Union, to lack the will power to resist the impulse to commit the offense. The first part of this rule is known as the *right-and-wrong test.* This test is basic in English and American law and in England and most states the sole test of responsibility. The second part of this rule is termed the *irresistible impulse test* and is the second test of responsibility in seventeen states (of the United States). New Hampshire has rejected both tests and holds that there is no legal test of irresponsibility by reason of insanity.

The *right-and-wrong test* was not used in English courts when insanity became a defense to crime early in the fourteenth century. The first outstanding writers on this aspect of criminal law were Coke and Hale in the seventeenth century. Coke [7] pointed out that "no felony or murder can be committed without a felonious intent or purpose," and that the lunatic, because he is lacking in mind and reason, cannot have a felonious intent. Hale [7] followed the same line of argument but distinguished between total insanity, in which there could be no criminal intent, and partial insanity, in which criminal intent was possible. This distinction established the point that not everyone with a mental disease should be considered irresponsible for his criminal acts. The amount or degree of mental disorder which might relieve one from responsibility became a crucial question, and many different standards have been formulated. Hale suggested a standard which was later spoken of as the *child-of-fourteen-years test.* He said, "Such a person as labouring under melancholy distempers hath yet ordinarily as great understanding, as ordinarily a child of fourteen years hath, is such a person as

may be guilty of treason, or felony." * Paraphrasing this statement, the standard for total insanity was "melancholy distempers with less understanding than a child of fourteen," and the standard for partial insanity, "melancholy distempers with the understanding of a child of fourteen." The vagueness of such a standard is obvious.

Among the other tests of criminal responsibility that have been used are the *twenty-pence test* and the *wild-beast test.*[6] Regarding the former test, Fitzherbert said, "And he who shall be said to be a sot, an idiot from his birth, is such a person who cannot account or number twenty pence nor can tell who was his mother or father, nor how old he is, *etc.,* so it may appear that he hath no understanding of reason, what shall be for his profit, or what for his loss. But if he hath such understanding that he shall know and understand his letters and read by telling or information of another mind, then it seemeth he is not a sot nor a natural idiot." † This test, to our present-day concepts, seems to apply more to mental deficiency than to insanity, but it was a classical standard in the history of criminal law and was used in many cases involving insanity. The *wild-beast test* was handed down in a decision in 1724. It was stated that in order to be held not guilty for a crime, "It must be a man that is totally deprived of his understanding and memory, and doth not know what he is doing, no more than an infant, than a brute, or a wild beast, such a one is never the object of punishment." ††

Another famous decision, given in the Hadfield case [7] in 1800, introduced a new concept into criminal law, involving the *insane delusion* as a test of responsibility. The defendant in this case was an army officer who had been discharged from the army because of insanity. He had the delusion that he should sacrifice himself for the world's salvation. In order to accomplish this sacrifice, which he felt was divinely inspired, he attempted to shoot King George III. In a brilliant and jury-confusing speech, the defense attorney was able to get a decision that the defendant was not responsible for his act. Later decisions did not use the presence of delusion as a test of irresponsibility in itself, but only as it had bearing on other tests. In the early part of the nineteenth century, the *good-and-evil test* for mental responsibility was formulated. Its main principle was that "those who are under a natural disability of distinguishing between good and evil, as infants under the age of discretion, idiots, and lunatics, are not punishable by any

* H. Weihofen, *Insanity as a Defense in Criminal Law.* New York, Commonwealth Fund, 1933, 19.

† J. Michael and H. Wechsler, *Criminal Law and Its Administration.* Chicago, Foundation Press, 1940, 807–808.

†† J. Michael and H. Wechsler, *ibid.,* 809.

criminal prosecution whatever." * It is interesting to note that this test referred to a knowledge of good and evil as abstract ideas.

The most famous case concerning criminal responsibility in the insane was that which led to the formulation of the *right-and-wrong test.* M'Naghten's case of 1843 [7] was one of great popular interest at the time and has had great influence on most later decisions. Daniel M'Naghten shot and killed the private secretary of Sir Robert Peel, with the idea that the secretary was Peel. M'Naghten had the delusion that he was being persecuted by his enemies, one of whom he thought was Peel. He was found not guilty on grounds of insanity. Because the murdered man was of public importance, a great deal of attention was aroused by the case and it was brought up in the House of Lords for debate. This led to a request for the opinion of fifteen eminent judges of England on the law governing such cases; that is, the existing laws of insanity at that time. Specific questions were posed concerning the responsibility of those claiming insanity as a defense to crime. The judges' answers to these questions came under two general headings: The first consensus of the judges was that, "The jury ought to be told in all cases that . . . to establish a defense on the ground of insanity, it must be clearly proved that, at the time of committing the act, the party accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or if he did know it that he did not know he was doing what was wrong." † The important point here was that the knowledge of right and wrong should apply to the specific act with which the defendant is charged and not to some general sense of right and wrong. The *good-and-evil test,* previously mentioned, referred to the abstract relationship.

The second part of the judicial consensus was, "Where a person labours under partial delusions only and is not in other respects insane . . . he must be considered in the same situation as to responsibility as if the facts with respect to which the delusion exists were real." †† For instance, if an insane person killed a man because of the delusion that the man was about to kill him, he would not be held responsible; but if he killed him because he thought the man was talking behind his back, he would be responsible. This has been termed the *mistake-of-fact test.* This standard has been referred to at times by a few states in this country, and both judges and medical men have pointed out that it works hardship in some cases. The courts generally agree today that the *right-and-wrong test* is the standard to be applied.

* H. Weihofen, *ibid.*. 19–20. † H. Weihofen, *ibid.,* 28. †† H. Weihofen, *ibid.,* 28–29.

The irresistible impulse test [7]

In certain of the United States a supplementary test of responsibility may be used in cases where insanity is pleaded in defense. According to this test a person is not criminally responsible for an act committed under an uncontrollable impulse resulting from mental disorder which overwhelms reason, conscience, and judgment. "There cannot be, and there is not, in any locality or age, a law punishing men for what they cannot avoid." Support for the application of this test has been given by psychiatrists who point out as examples, the impulsive actions of schizophrenic patients, of manics, and of compulsive neurotics. The *right-and-wrong test* rests on the capacity for intellectual discrimination while the *irresistible impulse test* rests on freedom of the will. If the mind is weakened, clouded, or deranged then a strong impulse may overwhelm understanding and discrimination and lead to a criminal act. This rule has been rejected in all but seventeen states. The rejection has been based on such grounds as (*a*) the belief that no such disorder is possible in fact, (*b*) if it does exist, it is too difficult to prove to be allowed as a defense for crime, (*c*) it is a defense dangerous to society, and (*d*) the *right-and-wrong test* is recognized as the only criterion of responsibility and is sufficient.

The insane delusion test [7]

Some courts laid down a special rule in cases involving false beliefs or insane delusion. For example, a defendant believed in witches, and that the Bible sustained his belief and taught that it was right to kill witches. He killed a woman in the belief that she was a witch. Otherwise he seemed of sound mind. Generally the courts have held that a person suffering from insane delusion is responsible for his criminal acts unless he is incapable of distinguishing right from wrong with respect to the act or if the delusion created an irresistible impulse to commit the act. In M'Naghten's case the defendant was obviously the victim of his delusions, and the right-and-wrong rule was derived from that case. Further the attempt to set up an *insane delusion test* implies that a person may be laboring under a delusion and not otherwise insane. Practically every medical writer has pointed out that there never has been a person who labored under a partial delusion only, and was in no other respect, insane. Usually the *insane delusion test* is rejected as an adequate basis for defense in criminal cases.

However, if in a contract case it can be shown that an insane delusion was intimately related to the subject matter of the contract, the contract

may be voided. If the delusion does not concern the particular contract that contract will be upheld. For example, a husband had an insane delusion that his wife was having illicit relations with an undertaker and for that reason deeded all his property to one son. In this case the court set aside the deed.

No legal test

The New Hampshire court rejects all legal tests, holding that the determination of responsibility or competency is one of fact which the jury should decide. If the evidence or testimony indicates that the defendant had a mental disease and if the criminal act was a product of that mental disease, the jury should acquit him. If the defendant committed the act with the required intent, he is responsible, but if his mind is so disordered that he is incapable of that intent, he is not.

Although this rule seems to have much merit it has never been accepted in any other state. To make it work assumes that there is expert authority available to state whether or not mental disease exists in each particular case. It is customary for the state's attorney in criminal cases where the sanity of the defendant is in any way doubted, to request an examination of the defendant by the superintendent of the State Hospital. However, the opinion of the superintendent is not conclusive for either the defendant or the prosecution, although the opinion certainly carries great weight in the ensuing legal procedure.

The application of the tests

The principal point of discussion in many legal decisions concerning insanity is the standard for drawing the line between sanity and insanity in order to determine whether the person is responsible for his acts. No hard and fast rule has ever been applied. All the tests or standards are subjective. Most cases have actually been decided according to an inarticulate behavioristic standard.[5] Even though a subjective standard may be mentioned, the outcome of most cases seems to have depended upon consideration of a wide constellation of factors, so that justice usually prevailed.

Concepts of responsibility for criminal offenses have also shown certain changes. Weihofen [7] has summarized several different trends in the treatment of the plea of insanity in criminal law in this country. In the first place, there has been a tendency to demand less proof to entitle a defendant to acquittal on the basis of insanity. Second, there has been a trend toward

resorting to legislation to get improved legal handling of insanity cases, instead of leaving the principles involved up to the judiciary. The procedure for trying such cases has been changed in several states. For example, the Briggs Law of Massachusetts provides for impartial, routine mental examination before trial of all persons accused of crime. The result has been that insane and irresponsible offenders are sorted out and prolonged criminal trials where insanity is an issue are avoided. The procedure involved has been amended several times and now provides that the State Department of Mental Health shall report to the court and the defendant's counsel concerning the defendant's mental condition and whether or not the Department considers he should be tried on the criminal charge. If declared sane and brought to trial, he is still permitted to enter the plea of insanity with recourse to the usual processes of summoning expert testimony. This procedure eliminates the haphazard system of leaving the recognition of mental unsoundness to laymen and provides for an examination made by a neutral, unbiased expert agency. In spite of certain difficulties in legal procedure entailed in the administration of this law, it constitutes the most advanced type of legislation on the subject.

Massachusetts is not the only state with such an improved procedure, but it has gone further along this line than other states. New York City provides for a preliminary mental examination of criminals, but the clinic making the examination is attached to the police department rather than to the courts. California, Colorado, Louisiana, and Maryland have made legislative provision that the issue of mental unsoundness is to be tried separately from other issues.

Tort

In tort (offenses such as assault and battery, libel, and negligence) insanity was not regarded originally as an excuse. The insane individual was held liable for damages and injury to the property or body of another person. The theory behind this practice was that in such offenses, compensation should be given to the injured person for damage done, regardless of whether or not damage had been *intended.* In other words, intent was not the point at issue. For example, if an excited, agitated patient broke or damaged someone's property without reason, he was accountable in court for the extent of this damage. The present English interpretation is that the person is not guilty of a tort when he is incapable of wrongful intention or incapable of understanding the nature and consequences of the act which he is doing. American law holds that the insane person is responsible for

damage done as far as civil action is concerned, but he is not responsible where intention is held to be a necessary element in the liability. This means that in cases of libel or slander, where intention is important, the insane patient would not be held responsible. If, however, he destroyed the property of someone else, he would be financially accountable. The question of intent would be decided in terms of the *understanding test* previously mentioned.

Contract

The history of the relation between insanity and contract is a complicated one. In ancient English law, mental incompetency prevented the formation of all contracts. It was assumed that formation of contracts depended upon the consent of both parties. The lunatic was not capable of giving his consent and, therefore, could form no contract. This principle was reversed in the famous decision on Beverley's case in 1603, in which a lunatic was held liable for a contract which he had made. The principle of Beverley's case, that "no man can stultify himself by pleading his own incapacity," actually was a revival of an ancient law rarely used. It provided a precedent for cases as late as the middle of the nineteenth century, although there were a few conflicting decisions.

In 1843, the famous case of Molton *v.* Camroux [1] gave a new turn to the problem of an insane person's responsibility for contracts which he had signed. In this instance, an action was brought by the administrators of the estate of a lunatic who had died without making a will, to recover money paid by him to an insurance company for two annuities. The man was of unsound mind at the time of purchase, but the company was not aware of this fact. The court decided that the money could not be recovered, stating that mental incompetency was not a defense in contractual cases except when the defendant's state of mind was known at the time of the transaction and advantage was taken of it. In this case, the transaction itself was a fair one, and no advantage had been taken of the man. English law in general has maintained the interpretation that the contracts of the insane are void unless the lunatic has derived benefit from the contract and the other party has suffered. For example, if the lunatic has received services from another person under a contractual agreement, he must pay for them as the contract demands. This fits both into Common Law and the rule of equity, that no one is to be enriched at the expense of another.

A different reason for the voiding of contracts signed by lunatics was given by the United States Supreme Court in 1872 in the case of Dexter *v.*

Hall.[2] Here, the defendant claimed title to some property, but the title depended upon the validity of a power of attorney. The plaintiff maintained that the maker of the contract was mentally incompetent at the time of execution of the power of attorney. The Supreme Court said, "The fundamental idea of a contract is that it requires the assent of two minds. But a lunatic, or a person *non compos mentis,* has nothing which the law recognizes as a mind, and it would seem therefore, upon principle, that he cannot make a contract which may have any efficacy as such." *

This reference to a lack of mind has been replaced in present legal proceedings by the concept of degree of capacity for understanding. The *understanding test* is usually employed, although not always followed too closely. In some cases the *insane delusion test* has been admitted. If the contract can be shown to be materially affected or motivated either by an insane delusion or by lack of understanding, it may be declared void.

Testamentary capacity

In all legal proceedings except wills, the individual is considered sane until proved otherwise. In wills, the classic words of the document, "being of sound and disposing mind and memory," place the fact of mental competency in the foreground as a requirement in making the will. In general, if the testator (a person who leaves a will in force at his death) can be shown to have been mentally incompetent at the time the will was drawn, the will is not accepted at probate. The standards of mental competency on this point have not been very strict, and it has been said that it requires less mental capacity to make a will than to make a contract. Even when the ability to transact ordinary business affairs is lacking, a will made in an incompetent mental state may be sustained. The courts have held that, in order to make a will, a person must have the capacity for understanding the nature and extent of his property. He must know who his natural objects of bounty are, and how he wants to dispose of his property. Even if he had been adjudged insane, the will may be upheld if there was no evidence of insane delusions in the disposition he made of his property. In other words, if he followed the general form that most people use in making a will, leaving his money to his natural heirs, his will is apt to be upheld by the court. If the form of legacies is bizarre and eccentric, it will be taken as corroborative evidence that the disposition of his property was motivated by insane delusions when other lines of evidence of mental incompetency are

* M. D. Green, "Public Policies Underlying the Law of Mental Incompetency," *Michigan Law Rev.,* 1940, *38,* 1202.

submitted. As long as the contractual agreement or the division of property under the will is fair; that is, if it follows the usual pattern of such instruments in that community and fits popular opinion of what is just and right, the will or contract may be allowed to stand, even though the maker was incompetent at the time of making the instrument.[5] A judgment based on a constellation of factors or the popular notion of fairness in such a case is a turn away from usual legal precedence. No other (or few other) cases would have the same constellation of factors, so that each case is judged principally on its own merits rather than on its resemblance to earlier cases.

Crime

In determining criminal responsibility, the line is drawn on the basis of the *right-and-wrong test.* Another principle of Common Law still operative is that an insane person shall not be executed for a crime even though he was sane at the time of commission. The principle upon which this practice is based was stated in some of the very early cases involving Common Law as, "Such a person cannot be an example to others." It has been the rule that the person to be executed must be capable of understanding the nature and purpose of the punishment he is to be given. In the United States, if a person becomes insane after the commission of a crime, he is committed to a mental hospital (usually one for the criminally insane). Upon regaining his sanity, he is brought back to stand trial, or to undergo the punishment that was imposed after trial.

The basic legal procedure employed in determining any question of responsibility is that of trial by jury. There have been many criticisms of this practice of using laymen's opinions and decisions on a subject as complex and specialized as is the analysis of an individual's mental status. It has been pointed out that no one would consider asking a layman to decide whether or not a person had a cancer or tuberculosis, but we still insist on making him the judge of the question of responsibility dependent on the presence or absence of mental disease. The New York Court of Appeals in 1896 ruled, "It is generally safer to take the judgment of unskilled jurors than the opinions of hired and generally biased experts."[7] In recent years there has been a trend to view the problem from a different angle. The qualified psychiatrist is now expected to evaluate the mental status of the defendant and to give this information to the jury. The jury's task is to decide whether or not the person was responsible for his act in the light of the expert opinion, which is a legal question and not a medical one.

Therapy

The mission of the court is to provide justice. The mission of medicine is to maintain health. The mission of psychology is to provide knowledge concerning the basis of behavior and mental life. The court, medicine, and psychology all deal with human welfare. They have much mutual interdependence. The court rests on an older, broader, firmer foundation in the scheme of human values. Hence, the physician may give expert opinion in the court, while the psychologist, generally speaking, provides some of the basis for the opinion of the physician. The question of individual therapy is secondary to social justice. But being secondary it has not been overlooked.

A variety of courts have mental hygiene officers, social workers, and psychologists to assist and advise in dealing with problems of individual therapy. The judge may order medical care (commit to a hospital), special school training, guardianship, and so on. He may, depending on the law, make use of information provided by social investigation, in arriving at the sentence. In brief, the judge is often in the position to initiate individual therapy.

The problem of the court is twofold, to protect the individual from himself and others and to protect society from the misconduct of the individual. The court usually makes use of those methods and facilities which are usually available or provided by the community for any ailing or deviant person. The misconduct of the individual does not bar him from individual therapy, indeed the court may get assistance for him more quickly than he would have been able to have obtained it by himself. The court, considering the welfare of society, may not go as far in individual therapy as the therapist, who is considering only the individual, would desire. The problem of the judge is to determine the greater good for the greater number.

Psychological theory and legal practice

The history of the legal status of the insane reflects many of the views of mental disease that existed in centuries past. Some of them have been outdated and dropped from legal procedure, but others have survived to the present day. Even while the general direction of legal decisions has remained the same, the theory behind the decisions has changed. For example, in regard to contracts made by the insane, the early Common Law held them void because contract depended on the meeting of two minds and the lunatic had no mind. Later, the reason given for voiding such contracts

was that contract depended upon *consent* and the lunatic did not have free consent. Today, judges speak in terms of the mentally disturbed person's degree of understanding in regard to the specific transaction. Thus, the shift in theory has been from viewing insanity as complete absence of mind, existing on an all-or-none basis, to determining the quality of disturbance as it affects some specific situation.

In criminal law, present-day procedure still follows the *right-and-wrong test* which resulted from the M'Naghten case. The legal opinion in this case reflected the knowledge and beliefs held by fifteen eminent English judges one hundred years ago. Their formulation of the *right-and-wrong test* was greatly influenced by years of precedent and, especially, by the writings of Lord Hale (1609–1676) who believed in witchcraft, demon possession, and the influence of the moon on insanity.

Today, the point at issue when insanity is pleaded as a defense for crime is whether or not the individual was responsible. Responsibility in the legal sense is linked with liability to punishment. If the man was not responsible, he is not punishable. All legal statutes recognize guilt as the prerequisite of punishment. Guilt, in this sense, is akin to intention, a direct connection between willing and acting. If the act occurred by the free will or choice of the doer, he is responsible; if mental disease prevented him from being a free agent, then he is not responsible for his acts.

In this viewpoint, the choice between right and wrong is made by "reason," one of the faculties of the mind which was so highly respected in the philosophy of the eighteenth century. The lunatic was forgiven his misdeeds because he had lost his reason. Today, psychologists do not conceive of reason as an independent power which acts separately from other mental operations. Reasoning power, as now conceived, concerns processes of deductive and inductive thinking. Crimes of the insane are viewed, not as the result of defects in reasoning power, but as uninhibited emotional responses. It is not reason which keeps us from committing murder if we have the impulse to do so, but a complex integration of mental processes in which a large element is our identification with the person toward whom our hostility is directed. When this identification is absent, the impulse may break through, but it is not a matter of reason, or the lack of it, which permits its appearance.[8] Other factors involved are strictly situational. In one set of circumstances, murder will take place; in another, it will not. The operation of reason is affected by emotional processes which, in turn, have been influenced by the surrounding circumstances.

The psychological and legal viewpoints also differ on the question of the imaginary line between sanity and insanity. The psychologist sees many

transitional forms or borderline states between satisfactory adjustment and gross maladjustment.

The basic legal concept of criminal responsibility, that is, the question of whether the defendant was so mentally unsound as to lack knowledge that his act was wrong, is another point of difference between psychology and law. In the first place, it is extremely difficult, if not impossible, to reconstruct and appraise what was going through the defendant's mind (his stream of consciousness) at the time of the crime. Even if such an appraisal is attempted, and some sort of a reconstruction is made, the question remains as to what is meant by the phrase, *"Know the act was wrong."* Anything from simple perception to deep moral appreciation could be implied. Mere awareness that the act was wrong; that one has been told not to do it—that one would be punished for it—so much "knowledge" was probably present at the time of commission in most instances where a plea of insanity is made as a defense. More important, of course, is an understanding that the act was wrong on a moral or ethical basis. On this line of argument one might expect that the socially underprivileged person who has never received proper moral, ethical, or character education should be forgiven his crimes because he never had the opportunity for proper moral or ethical education. A psychologist could reasonably argue for legal irresponsibility due to a lack of educational opportunity. Actually, at law, the lack of knowledge that the act was wrong must stem from severe mental confusion, stupidity, or insanity in order to free the defendant from responsibility. The legal interpretations still follow the theory that any person not insane has a choice between right and wrong, while the insane patient does not have this choice.

The law is built upon traditions and social mores and as these change, legal forms also change. Although this process may be slow, incorporation of new standards does take place. The broad public policies of the law are the protection and security of the group and of the individual. Evidently, the laws regarding both criminal responsibility and mental incompetency on contracts and wills are colored by this general policy of giving protection and security to the individual and to the group.

Summary

The place of the law and the court is clear in the social order. Although many of the basic assumptions on which court procedure are based seem far from the concepts of science from which abnormal psychology proceeds, it is not difficult to regard certain aspects of court procedure as examples of psychodiagnosis and provision for psychotherapy.

Mental defect and disorder are not of themselves matters of legal concern but the results of defect and disorder are. The disability growing out of mental incompetency does enter into matters of contract, tort, wills, and crime. In every instance the court tries to draw an imaginary line between sanity and insanity. If the person involved is insane he is not responsible. Various legal or judicial tests are used by the courts to determine the line and hence, the responsibility. These are the *understanding test,* the *right-and-wrong test,* the *irresistible impulse test,* and the *insane delusion test.* All of these are subjective evaluations of the behavior, experience, and circumstances surrounding an event under consideration. They are conceptual frames which judges use and which juries are expected to utilize in determining mental competency and hence responsibility. In order to assist the court in evaluating the tests the testimony of experts, usually psychiatrists, may be heard. Since the psychiatrist draws no sharp line between sanity and insanity—indeed does not employ the term insanity in his professional vocabulary—much misunderstanding exists with respect to psychiatric testimony.

Several encouraging trends have developed in recent years which have improved the legal handling of mentally ill persons. Expert testimony is now given more weight in the court, and those who give expert testimony have had to meet more adequate standards for qualification as experts. The Briggs Law in Massachusetts, although not ideal, has been a step forward in the direction of better provision for understanding and disposal of individuals affected by true mental disease or mental defect.

Therapy is not a primary concern of the court but because of the responsibility of the court for the welfare of the individual the court utilizes, advises, or orders therapy for mentally incompetent persons.

Psychologists, as scientists, find difficulty in reconciling the legal concept of responsibility and guilt dependent on a faculty of reason with their knowledge of the nature and manifestations of emotional drives and impulses. For example, the *understanding test,* in judging as it does "knowledge of right and wrong" is an oversimplification of the psychological processes involved. The proper conservatism of the law and the progressive nature of science are frequently at odds.

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SECTION FIVE
DIAGNOSIS
AND THERAPY

Chapter 32 *Psychotherapy*

BEFORE 1900 THERE WERE NOT MORE THAN A HANDFUL OF PHYSICIANS or psychologists who practiced, or were even interested in, psychotherapy. The physician treated sick people by means of medicines or surgery. He cultivated a "bedside manner" of sympathy and reassurance but he did not consider the mental difficulties of the patient to be of any special concern to him. Psychologists were interested in mental processes of normal human beings, but considered that the problems of psychopathology were not exactly within their field of major interest.

Psychotherapy as a medical specialty evolved from two sources, the study and treatment of hysterical patients (who had apparent physical ailments) and from the rather unsystematic therapeutic efforts of physicians whose major responsibility was the care of the physical well-being of the inmates of insane asylums. Psychotherapy as a branch of applied psychology grew out of two entirely different sources, the practical problems of educational guidance and the problems of vocational selection and personnel management. Psychotherapy today is usually thought of by the physician as *directive* and by the psychologist as *nondirective*. The physician is inclined to say, "Take my medicine and advice and you will recover." The psychologist tries to assist by indirection, by examples, or by training, so that the patient will be able to help himself. In either approach psychotherapy is the acting on the mind of a human being by mental means, with the intention of effecting a cure (healing with words). In this larger sense psychotherapy is not solely the concern of the physician or the psychologist, but the concern of every human being who attempts to relieve the sufferings of the troubled mind of another person.

Today psychologists are interested in psychotherapy for two different reasons, one theoretical and one practical. Theoretically, the subject of

psychotherapy is part of general psychology and should be understood by any individual who hopes to have a working knowledge of the science of psychology. From the practical point of view, many psychologists are called upon to do psychotherapeutic work, since it is recognized that they have (or should have) specialized knowledge which provides an understanding of human behavior. The place for therapeutic activities of a psychologist in America at present is not too well defined. Psychologists have a well recognized status as therapists in the use of educational and vocational procedures. Their status is less well defined when they are dealing with neurotics or those with character disturbances. They have no recognized status and, as conditions exist at present, no independent place in dealing with the direct therapy of the major mental disorders, psychoses, and organic conditions. Since these latter conditions very frequently involve or are complicated by physical illness, psychologists usually act under the direction of, or in close collaboration with, a physician when applying psychotherapy to such patients.

During the centuries of recorded history every conceivable method of treating the mentally sick has been tried. Every new medical, physical, biological, or physiological discovery is soon tried out with the mentally ill. Every new psychological approach, every new educational procedure has had its turn. Some have proved to be effective; most have been found wanting. With certain of these approaches, particularly those which are essentially of a psychological nature, we will now concern ourselves. Not too much is known about the way in which these methods operate. Present-day judgment of the effectiveness of almost any form of psychotherapy is in terms of results which have been reported, even though we are not always certain how those results were produced. Since the medical approach to psychotherapy is historically older we will consider it first.

Hypnotism and suggestion

Franz Anton Mesmer [6, 11] (1734–1815) first called to scientific attention a phenomenon which he named *animal magnetism*. In 1766 he published a thesis on the influence of the planets on the human body. He held that the planets exert a direct action on all parts of the body, but particularly on the nervous system by means of an all-penetrating fluid. The increases and decreases in the action of this fluid he believed gave rise to gravity, cohesion, elasticity, irritability, and electricity. He thought that the animal body had properties that rendered it liable to the action of animal magnetism as well as to the heavenly bodies.

In Vienna, in 1774 he had under his care as a physician a young woman whose trouble we would today diagnose as hysteria. He conceived the idea of trying magnetism as a means of therapy. He prepared the patient by giving her large doses of fluid iron tonics. Then during one of her attacks he



Fig. 41. Franz Anton Mesmer (1734–1815).

applied iron magnets to the stomach and both legs. This, according to the patient, was followed by extraordinary sensations. She felt inside herself some painful currents of a subtle material which caused all the symptoms of the attack to cease within six hours.

This experience confirmed Mesmer's theory to his own satisfaction. It attracted medical and scientific attention in Vienna. To meet part of the unfavorable criticism, particularly with respect to the use of actual magnetism, he published in 1775 a statement that all bodies were, like the

magnet, capable of communicating this magnetic principle; that this fluid penetrated everything and could be stored up and concentrated; and that animate bodies were divided into two classes, one being susceptible to this magnetism and the other having the quality of suppressing it. In other words he regarded animal magnetism possible without the presence of iron magnets.

Mesmer was a quarrelsome, contentious, tetchy person. He became more and more embroiled with his medical colleagues in Vienna so that in 1778 he "decided to travel for the sole purpose of securing the relaxation [he] so much needed." On arriving in Paris he demonstrated his system of therapy to many scientists and physicians. These demonstrations led a number of patients to come to him so that he was soon applying the treatment to many kinds of diseases. He made many startling cures and soon became the rage of Paris which caused him to be the object of sharp medical criticism. His difficulty came from the fact that he could not explain his cures. Everyone could see the cures with their own eyes as could Mesmer. His explanation in terms of animal magnetism was satisfactory to him but not to very many others. Most believed him a quack and charlatan. He and his explanation were rejected by both the Faculty of Medicine and the Academy of Science.

In 1781 a group of 103 of his followers established a "Society of Harmony," to study and apply Mesmer's methods and swore themselves to secrecy as to their findings. Mesmerism became a cult.

Under their auspices Mesmer established a new clinic. This was held in a large room which was draped and darkened with curtains and hangings. In the center of the room was a large oak tub which was several feet high and large enough to permit thirty patients to stand or sit around it. The tub was filled with water in which had been placed iron filings, ground glass, and a number of bottles into which Mesmer had "poured" his own animal magnetism. The tub was covered with a wooden lid through which projected jointed iron rods. The patients would apply the end of one of the rods to whatever part of their body was ailing. While surrounding the tub the patients maintained absolute silence, so that they could listen more attentively to the soft music that was being played. At intervals Mesmer, wearing a purple silk coat, would enter the room. He would come to each patient in turn, fix his eyes on him, pass his hands over his body, and touch the diseased part of the body with a long iron wand. Persons who were suffering from a wide variety of diseases claimed that they were cured by several such treatments.

The secrecy of the "Society of Harmony," the dubious practices which

some members of the society were said to have used, the behavior of some of Mesmer's patients and the antagonism of the Faculty of Medicine, finally led the Academy of Science to petition the King of France to appoint a Commission to investigate animal magnetism. This Commission was ap-

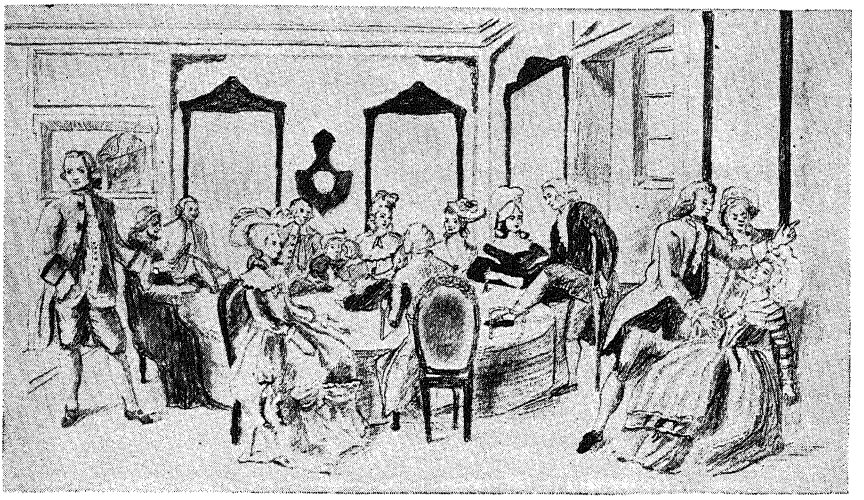


Fig. **42.** Mesmer's clinic. (Redrawn from a contemporary print.)

pointed in 1784. Among the nine members of the Commission were Lavoisier, who discovered oxygen, Guillotin, the inventor of the instrument of execution which bears his name, and Benjamin Franklin, then American Ambassador to France.

The Commissioners held that they must limit themselves to physical proof of animal magnetism. They witnessed the activities at d'Eslon's clinic (a pupil of Mesmer) and then proceeded to try the procedure out by being themselves "magnetized" and by trying "magnetism" out on diseased persons. The Commissioners felt nothing themselves and reported that only five of fourteen sick persons that they investigated appeared to feel any effect from the procedure. They concluded their report as follows:

The Commissioners aware that the animal magnetic fluid could not be perceived by any of our senses, that it had no effect on any of us, nor on the patients that we submitted to it; having assured ourselves that the pressures and touchings cause changes rarely favorable to the animal economy and disturbances always harmful to the imagination; having finally demonstrated by decisive experience that imagination without Magnetism produces convulsions and that Magnetism without imagination produces nothing; have unanimously concluded in regard to the question of the existence and usefulness of Magnetism that such

animal magnetic fluid does not exist, that fluid without existence cannot be useful, that the violent effects seen in public treatments result from the touching and from the action of imagination and by the mechanical initiation which impels us to repeat our sense impressions. . . . Consequently all public treatment by Magnetism must in the long run be harmful.*

This negative report and the civil disturbance in Paris at the onset of the French Revolution caused Mesmer to leave Paris. He went first to Germany, then to Vienna, and finally to Switzerland, so passing out of the scientific scene. It is evident that Mesmer had made a discovery which he himself misinterpreted, as did the Commission which investigated animal magnetism.

Mesmer did not actually hypnotize his patients, as we understand the term today. He did produce some very interesting trancelike states. For example, it was reported that "all of the subjects were, to an amazing extent, under the influence of the magnetizer; though they might seem to be asleep, his voice, or a look or sign from him, would arouse them." [7] One of Mesmer's disciples was A. M. J. DeChastenet (Marquis de Puysegur), who while using the methods which Mesmer called magnetism produced a state which he called "somnambulism." He found that he could dangle ropes from a tree and that he got the same results when the rope was applied to the sick person as when he used iron rods. This he considered "vegetable magnetism" and evidence that Mesmer was correct in that magnetic fluid was universal. He also found that, in place of the convulsive type of reaction shown by many of Mesmer's patients, some persons went into a quiet sleeping trance. From this trance they apparently did not fully awaken for some time, but went about in the fashion of sleepwalkers. When they did awaken they were unable to recall anything that had happened during the trance. Following this discovery in 1784, various physicians and scientists investigated this somnambulistic state. They demonstrated that it was possible to produce in patients who were in such a trance, positive hallucinations (seeing things which are not present), negative hallucinations (inability to see things which are really present), anesthesias of any sense, paralyses or loss of voluntary control of any body movement, insensibility to pain, amnesias, and varieties of posthypnotic suggestion. Since the phenomena could be reproduced by practically anyone and the same sort of results produced, it was seized upon by charlatans, quacks, and fakers whose abuse of the procedure brought it into quick disrepute.

Braid [15] in England in 1841 reestablished scientific interest in Mes-

* *Rapport des Commissaires Chargés par le Roi de l'examen du Magnétisme Animal.* Paris, L'Imprimerie Royale, 1784, 64–65.

merism. He saw a demonstration given by a French magnetizer and although he originally thought the man was a fake, he convinced himself of the genuine nature of the phenomena in question by producing them himself. He developed a special technique for inducing the trance which is still used.



Fig. 43. One method of magnetic healing employed by De Chastenet.

He had the subject look fixedly at some bright object which was held near and slightly above the eyes in such a way that the fixation caused a strain of the eye muscles. This fixation, combined with verbal suggestion, brought on a trance which he named *hypnosis*.

Braid's work attracted the attention of several other physicians and surgeons. It also met bitter, determined opposition from the organized medical profession. In spite of this, mesmeric hospitals were founded in various English cities for the purpose of performing medical and surgical work in conjunction with hypnosis. Amputation of limbs, childbirth, and many other surgical procedures were successfully carried out during hypnotic trance. However, the discovery of anesthetic agents, such as nitrous oxide, chloroform, and ether, was made about this time. Since they did not depend upon a disputed psychological technique, the use of hypnosis as a means of inducing anesthesia for surgical procedures soon virtually disappeared.

Although surgery could dispose of hypnotism, psychological medicine could not.[17] The dramatic results obtained in many cases were too impressive to be discounted. When hypnotism was compared to the other procedures, such as purges, bleeding, and drugs, which were used at that time

(unsuccessfully) with the mentally ill, it was apparent that the method was useful and productive. Hypnotism unfortunately had (and still has) the reputation of being something mysterious. It seemed to carry with it more than the average possibility of fraud, plus the popular notion that there must be something sinister and evil involved in the procedure. The method has encountered continual opposition because the results produced cannot be related to anything which seems definite and objective.

In the early 1880's two outstanding French physicians began making use of the hypnotic procedure for the care and investigation of mental patients. These two investigators were Charcot and Bernheim. Charcot was head of the neurological service at Salpêtrière, the leading mental hospital in Paris. He became particularly interested in the study of hysteria and in the use of hypnosis in the investigation and treatment of the hysterical patient. His investigations led him to the conclusion that hypnosis was possible only in individuals who were actually or potentially hysterical and that hypnosis was closely allied to hysteria.

Bernheim was head of the mental clinic at Nancy. He also made use of hypnotism in the study and treatment of hysterical patients. He believed and taught that both hysteria and hypnotism were merely exaggerated forms of suggestion or autosuggestion. He saw no essential connection between hysteria and hypnosis. He stressed the need for studying the processes of suggestion and the characteristics of suggestibility, since he considered them in no sense limited to hysterical individuals. He was more nearly right in his conclusions than was Charcot. However, Charcot exercised the greater influence in the development of psychotherapy because he had among his students both Sigmund Freud and Pierre Janet, each of whom later developed specialized forms of psychotherapy. Their work, in part, grew out of the observations which they had made in Charcot's clinic.

For a variety of reasons the use of hypnosis as a psychotherapeutic method suffered a partial eclipse for about fifty years, or until its recent revival under the name of hypnotherapy. The reorientation of method and theory in terms of the psychoanalytic dynamics has reopened the entire problem. Before it can be taken up the method of psychoanalytic therapy must be considered.

Psychoanalytic therapy [4, 5]

Sigmund Freud (1856–1939) became interested in psychotherapy through several months association in 1885 with Charcot who was at that time employing hypnotic procedures in the treatment of hysterical cases.

When Freud resumed his practice of medicine in Vienna he was associated for a short period of time with Breuer who had developed what he called a "cathartic procedure," meaning that during hypnosis the patient was encouraged to talk at length about anything that came into his mind. Breuer and Freud in 1893 published under the title, "The Psychical Mechanism of Hysterical Phenomena," [3] the first paper on the subject of psychoanalytic therapy. Originally this therapy consisted of inducing the hysterical patient, while hypnotized, to remember and reproduce forgotten but traumatic experiences which had occurred in his past life. They found that such forgotten material was expressed in the symptoms of hysterical persons. Frequently the physical symptoms were symbolic equivalents of some painful memory that had been repressed. When Freud followed up this type of investigation with other studies which went more deeply into the background of the troubles of such patients, he observed that the symptoms and difficulties usually grew out of some form of sexual maladjustment or sexual repression.

Freud soon discovered that hypnosis was not a necessary element in the psychotherapeutic procedure, indeed, he became convinced that hypnosis offered a barrier to true understanding and therapeutic results. By a process of trial and error he found that patients would learn a process of free association (a rambling, undirected monologue), during which they could recover memories which had not been part of their ordinary conscious life. The therapy, he believed, was based on the fact that unconscious ideas and mental processes constituted the direct cause of the morbid symptoms. The treatment consisted in the promotion of the self-realization by the patient of the nature of these processes and in helping him to accept or resolve them following their incorporation into his conscious life. The mental resistance which the patient developed in this procedure grows out of the discomfort experienced in admitting into consciousness unpleasant, distasteful, or unconventional thoughts and ideas associated with his own past life. The patient must accept himself through better self-understanding. The fact that he has rejected or more or less inadequately repressed certain memories is considered the main cause of his present unhappiness and mental disability, that is, anxiety, compulsion, hysteria, and the like. When he is encouraged to pursue a course of free association, his forgotten memories are usually found to be either directly or indirectly connected with repressed sexual impulses or wishes.

In essence the psychoanalytical method, as Freud and his followers developed it, aims at enabling a patient to relax and allow his thoughts to drift idly from one idea to the next, without noting or caring where these

thoughts are leading him. Although this aim may seem to be simple and easy, it is the most difficult part (and the most essential) in the entire technique of psychoanalysis. It is not an uncommon experience for a person to have to work months before attaining any truly free production of material.

Psychoanalysis has two objectives. One of them is to survey the unconscious material of the patient's mind through the application of the method of free association. The other is to show the influence which this unconscious material has had upon the patient's relationship to other beings, as well as on his own mental life. On this basis the analyst can first map out the unconscious territory and if it seems advisable, describe to the patient in an impersonal manner the significant connections which he sees among the various components of the patient's associations. This is the analytical approach to the patient's biographical material. Soon, the analyst finds that he has become the storm center of highly significant emotions of the patient. These emotions have to be continuously described, explained, and resolved in order to make it possible for the work on the biographical material to proceed successfully. This emotional storm is called the "transference situation."

From the patient's point of view, the analysis of the transference situation is one of the most valuable of the analytic therapeutic experiences. The reason for this is simple. The analyst is, or should be, a person who is little known to the patient. He keeps himself as much in the background as possible, quietly friendly, but always impersonal and reserved. He tries to become a peg on which the patient can hang his fantasies. Therefore, when the patient's emotional relationship to the analyst is being explained and resolved, it is actually not a relationship to a real individual which is involved. The analyst is the object of many unconscious fantasies and feelings which the patient has developed about other persons, particularly his parents. During the psychoanalysis the patient may experience moods of anxiety, anger, hate, affection, or jealousy. By working out the unreasonable storms of feeling which play into his relationship with the analyst, it becomes possible to show him how his unconscious fantasies warp his relationships to other human beings.

The free association and the analysis of the transference situation reveal the countless interconnections of ideas and feelings which are practically inaccessible by methods which attend only to the production of logical and chronological thinking. The insistent reappearance of certain associations connected with observable emotional states gradually makes apparent those unconscious connections which are overloaded with emotional feeling. The

unconscious connections may be given special study until their significance is clear. The analyst can watch the course of the undirected associations and their interplay with emotional states, and can guide, in part, the solution of the patient's difficulties. By analogy, at least, it is possible for the analyst to observe in normal people and in those who have minor character disturbances, thin rivulets of fantasy and feeling. Their relationship can be traced step by step to the torrents of disorganization shown by the frankly psychotic or psychoneurotic patient.

Out of this procedure, together with the theoretical explanation which Freud and his followers have constructed, grew a radically different psychological viewpoint from that which was held in either objective science or in common sense. Some of this new psychology has been incorporated into ordinary scientific psychology. Some of it is now part of common sense and everyday speech; for example, inferiority complex, repression, or dream symbolism. General psychology and clinical psychiatry, the practical approaches to the problems of psychopathology, many of the case histories found in the literature, all these and more, are today replete with psychoanalytic terms and concepts. In fact, most of the explanations advanced in specialized psychopathological studies are phrased in the light of the concepts built up by Freud and his followers. There can be no question but that psychoanalysis has permeated psychiatry, psychopathology, abnormal psychology, and general psychology. Many of the contributions and implications of Freud's clinical observations were so persuasive that they have been accepted without scientific validation. As years have gone by, some of the material has been directly confirmed by scientific methods.[14] Other portions of psychoanalysis are believed correct although the evidence is indirect. Certain claims have been rejected for want of evidence or because further clinical observation has failed to bear out the original hypotheses.

Psychoanalysis provided a new viewpoint, a new terminology, a new tool, and a new therapy with which to study and treat the mind of the mentally disordered person. Freud and his followers have always maintained that psychoanalysis is itself a science and that its method is a scientific procedure. In comparison to the physical and biological sciences psychoanalysis is, at the best, a poor science and its procedure makes use of the weakest and most unreliable of scientific methods. It must rely upon a technique which does not admit the repetition of observation. It has no self-evident or easily demonstrable validity, and is mixed to an unknown degree with the analyst's own suggestions and with observations which are not directly related to the study of the patient. Such difficulties do not interfere with the therapeutic procedure, but they do weaken the claim that

the facts of free association obtained during the analysis are objectively valid. This does not mean that psychoanalysis and the findings obtained by the psychoanalytic method are false. It does indicate, however, that verification must be had either by some more objective experimental approach or by the accumulation of similar reports obtained by different and unprejudiced investigators.

As a method of treatment, the analytic procedure has been relatively successful with hysterical and neurotic patients and with persons suffering from minor character disorders or disabilities.[9] The therapeutic results are not significantly superior to those obtained with other methods used with similar groups of individuals, although they are usually said to be more lasting and even permanent. The application of the procedure to the major mental disorders has been unsuccessful. Freud himself counselled against the use of the analytic method during the acute phase of any psychosis. He indicated that it might be used with the manic-depressive patient when that patient was well, so that he might have a fuller understanding of himself even if future attacks could not be prevented. He advised against the psychoanalysis of schizophrenic patients except as a definite experiment, since he considered that the schizophrenic personality structure was so weak that analysis would do more harm than good. It is also true that psychoanalysis has added little or nothing to the therapy of amentia, epilepsy, or any of the organic psychoses.

In summary, Freudian psychoanalysis has contributed to our thinking about the problems of psychopathology and has provided a therapy of value in hysteria and other forms of neurosis, and in certain minor character anomalies.

Hypnotherapy [2, 15]

Although Freud said that psychoanalysis started only when he rejected the hypnotic technique, when the analytic concepts were far advanced hypnosis was brought back by other investigators as an adjunct to or part of the psychoanalytic method. Metaphorically speaking, the older use of hypnosis had been to put to sleep the Ego and make the Superego drowsy and then by direct suggestion attempt to modify or control the forces of the Id. Today hypnosis is applied therapeutically (*a*) in a prolonged fashion without direct suggestion, (*b*) as a method of allowing the direct recounting of traumatic experience, (*c*) as a method for permitting direct suggestion leading to disappearance of symptoms and attitudes, and (*d*) as hypno-

analysis which is a combination of hypnosis and psychoanalysis which permits a more rapid course of psychotherapy.

In prolonged hypnosis the patient is put in deep hypnosis and maintained in that state for several days at a time. The healing effect is comparable to prolonged narcosis or deep sleep. Under hypnosis it is often possible to encourage or obtain an account of some traumatic experience. For example, the hypnotist may suggest to a soldier suffering from traumatic neurosis that he is back under fire and ask him to tell just what happened. Such a patient may then show signs of great emotion, trembling, and perspiring, as well as a pattern of violent movements. He will give a verbal account of the horrors about him and the occurrences which led up to the point of his own unconsciousness. This memory can be reinstated in consciousness and a rational adjustment made to the facts (Chapter 28).

The method of direct suggestion is the classical way in which hypnosis has been employed. The newer applications integrate the hypnotic method with a more complete knowledge of the basic personality dynamics of the particular person. For example, in treating an hysterical paralysis of the arm one might suggest that the arm was well and could be used, and function would be restored. This restoration would probably be transient or replaced by some other equally disabling symptom. If one had by analytic study found that the paralyzed arm was a symbolical defense against masturbation and thereby against sexuality in general, one could suggest during hypnosis that the arm could be used and at the same time explain the motivation back of the paralysis. The usage and understanding would then become part of the conscious mental life and a more adequate form of adjustment sought.

Hypnoanalysis is a combination of hypnosis and psychoanalysis. As pointed out above it is difficult for many patients to learn to report in a free uninhibited fashion. They are fearful of themselves and their past experience. They are fearful of disclosing themselves to any listener. They "block" and find nothing to say no matter how hard they try consciously. Breaking past this block may take months, or it may prove impossible. When it is possible to hypnotize such a patient and to suggest that he start telling about his childhood or some incident that he says he has forgotten but which troubles him, then reporting can sometimes be started. His associations can be directed to some part of his past which the analyst suspects may be the basis of his trouble. The hypnotic state permits the patient to pass the blockade of his fearful repressions and to recount forgotten memories. The analyst can, on the basis of a general appraisal of the patient and

his problems, suggest that which will be remembered and that which will be forgotten on awakening, so attempting a reconstruction of the personality.

In his account, *Rebel Without a Cause,* Linder [10] gives a transcription of forty-six hours of reporting done by a criminal psychopath under hypnoanalysis. This account was given by a convict who was distrustful of the prison staff and his fellow convicts, but who reluctantly agreed to hypnotic treatment of a distressing condition of his eyes. From this he was led to agree to recount his life history during the same form of treatment. His report was taken down by means of a concealed microphone and transcriber. After his problems had been worked out, the convict urged the publication of his history. During the forty-six hours Linder obtained a very complete account and understanding of the inner life of this psychopath.

The student might well ask, "Why isn't hypnotherapy the ideal method of psychotherapy? It gets to the repressed forgotten material in anyone's life. It is a relatively rapid method, and the therapist can remold a personality without its more unpleasant features." There are several reasons why hypnotherapy is not ideal.

In the first place, not everyone can be hypnotized and not more than 20 to 30 per cent of persons can be hypnotized to a point where hypnoanalysis is possible. Secondly, the rapidity of the procedure depends upon many factors, and sheer speed will quickly defeat itself if reeducation is the desired goal. Lastly, the therapist often does not know what the real basis of the patient's trouble is, and even when he does, he may be at a loss to say what would be the most effective reconstruction of personality that he should attempt to produce.

Wolberg [16] gave an interesting example of this last point. A young physician requested that he be hypnotized in order that he might pass his State Board medical examination. He was busy with his intern duties and said that whenever he opened a book to study his mind went blank. As the date of the examination came nearer and nearer, he became more and more panicky. Wolberg, considering the evident anxiety, agreed to try the experiment and during several periods took the intern back, while hypnotized, to the memory of his actual medical school classes and laboratories, so that he described the actual occurrences and things he had learned. He was directed to remember these things during the examinations. On the evening before the examinations he phoned asking if it would not be advisable to spend the night at a hotel where he could sleep better and so be in shape to do justice to himself. Wolberg agreed that this would be a good idea. Late afternoon the next day, he again phoned saying in a calm fashion that never in his life had he slept so soundly, and as a matter of fact he had just gotten

up and so had slept through the examination period. He then came to the doctor's office to talk things over.

When he reported, he was in excellent spirits, without evident tension or anxiety. He confided that there was now no reason why he should not return to a State where he was licensed and needed no examination, since there he could marry a young lady to whom his parents had objected. His parents' objections had led him to the internship in the State where he had just missed the examination. He had followed his parents' wishes, had not been able to take the examination, and so could now go back and marry as he pleased. His conflict between love and parental loyalty had set up his inability to study. All was now resolved and guilt feelings gone. Certainly neither the patient nor the hypnotist had been aware of the underlying motivation, nor could the hypnotist be expected to have arrived at a correct solution of the problem in so short a time as was available.

When circumstances are favorable, hypnotherapy in the hands of a well-trained and skillful therapist is a valuable method. But it is nothing for the amateur or untrained person to experiment with. It does have positive dangers.

Group therapy [8]

The need for some psychotherapeutic procedure which can be applied to a fairly large group of mental patients at the same time has often been stressed. Many methods have been tried and promising results have been reported whenever the activities were organized by an enthusiastic psychotherapist with leadership qualities, who had adequate training and competent assistance. The results show an increase in the number of patients who are able to leave the hospital and an increase in morale of those who must remain in the hospital.

The group therapy method was used extensively in the treatment of psychoneurotic cases in the Army and Navy during and following World War II. It was particularly expedient in this situation because it was necessary to treat a large number of acute psychopathological cases with a limited number of therapists. The method was appropriate because of the common elements in the background, symptomatology, and specific problems of adjustment involved.

The program employed in the military hospitals was conducted somewhat as follows. A group of ten to thirty patients met with the psychotherapist at regular sessions which lasted about an hour and were held three or more times a week. At the first session the therapist pointed out that

these meetings would have value in helping each person get over his nervous condition. The group was told that each individual should bring up any problems that were bothering him and each should feel free to comment on the problems of others in the group. After the patients had been put at their ease and encouraged to talk, the therapist acted as a moderator. He endeavored to guide the group discussion and to build up group identification and solidarity. He had to be familiar with the history and problems of each patient so that he could draw each one into a participating role in the discussion.

The organization of topics to be discussed at each session was defined, so that rambling and incoherent sessions were avoided. Leading questions were used to bring out common symptoms or troubles. Questions such as, "What bothers you?" "What makes you angry?" "Why do you think such things scare you?" brought out immediate responses and these were developed by having various members of the group say why they thought such reactions occurred. Among the topics that the therapist introduced were the causes and results of conflict and anxiety, types of motivation, the ways of handling fears, the relation between bodily functions and emotions, and other topics relevant to the psychopathologies involved. During these group discussions, each patient found reassurance from the fact that others had problems similar to his own; he obtained a better understanding of himself; he was given constructive, practical suggestions relevant to his personal problems; and he had an opportunity to give vent to his complaints, hostilities, worries, and fears. In brief, the sessions provided an emotional catharsis and a program of reeducation.

One of the main goals of the method of group therapy was to build up the feeling of identification with the group. This feeling not only provided a means of "sharing the guilt" or "sharing the anxiety" but also furnished a stabilizing influence and support. The therapeutic objective was to patch up the personality assets and to return the patient to forms of adjustment which had been effective in previous army or civilian life. These psychotherapeutic sessions were integrated with an extensive program of occupational therapy, vocational guidance and instruction, and physical reconditioning which aimed at the development of interests and aptitudes. All of this provided a basis of personal satisfaction and accomplishment.

The group therapy method has been found valuable in relieving hostility, restlessness, and distressing feelings of guilt. It is useful also in reestablishing adequate participation in a social group. It differs from the usual psychotherapy in that a group and not a single individual is treated and in the fact that it tries to "patch up" the psychological weaknesses and

repress the disruptive elements in the personality rather than to take apart (analyze) the basic personality problems and rebuild personality structure. That group therapy is quite effective with many neurotic patients (and even some psychotic patients) has been demonstrated, but how well the "cures" last is not known.

In an attempt to maintain a healthy state after recovery from mental illness, several groups have been formed such as "Recovery, Inc." and "WANA" (We Are Not Alone). These groups function to maintain the mental hygiene of their individual members. The best known and most successful of such groups is that composed of ex-alcoholics.

Alcoholics Anonymous

Alcoholics Anonymous [1] is a group of over ten thousand men and women who have themselves recovered from a seemingly hopeless state of mind and body brought about through the intemperate use of alcohol. They found that an ex-alcoholic who had solved his problem and who was properly armed with the facts about himself could often gain the confidence of another alcoholic. On the basis of this confidence and with the help and understanding which one patient can provide to another, they have achieved some very excellent therapeutic results. Their method essentially consists of bringing the alcoholic patient sharply to the realization that he is a drunkard and that he himself is helpless to control his own obsessional tendency toward alcohol. He must admit to himself his own insufficiency and accept a three point program which they phrase as follows:

(*a*) That we were alcoholic and could not manage our lives.
(*b*) That probably no human power could have relieved our alcoholism.
(*c*) That God could and would if sought.

It is significant that this procedure has been empirically worked out by alcoholics themselves. It is based on an admission of a lack of self-sufficiency and the seeking for and dependence upon strength from an outside source. The group has demonstrated its effectiveness in a large number of cases. It is a form of nonsectarian religion in which the members have in common a self-acknowledged weakness which they attempt to conquer through mutual assistance and religious sublimation. The success which Alcoholics Anonymous has had demonstrates that repression and inspiration can sometimes be as effective as self-understanding and self-sufficiency. Some patients (and perhaps some varieties of mental illness) are best helped by an analytic self-understanding. Others need support; some form of faith

akin to religion. There is no organized body of evidence which might be called experimental psychotherapy but there is a real need for it so that the effective value of expression or repression in various symptoms, situations, and personality types might be evaluated.

Narcoanalysis [13]

The ancient observation *in vino veritas,* that under the influence of alcohol a man reveals the truth, has been given a new turn which is called narcoanalysis. Some hypnotic drug (usually sodium amytal) is slowly injected intravenously. The patient becomes drowsy and may even quickly fall asleep, from which he can be aroused. The art of narcoanalysis is to give enough of the drug so that in the drowsy, half-asleep state the therapist can by direct questioning go beyond the barriers of self-defense, resistance, and repression and quickly arrive at the core of the patient's troubles. Essentially the same procedures are followed which are used in hypnoanalysis.

The neurotic or psychotic patient is encouraged to remember and describe certain episodes which are believed to occupy a key position in the production of his mental symptoms. The goal is to obtain a restoration of certain periods of amnesia which are active as unconscious motivating forces. In order to assure the integration of these revealed facts into the ordinary stream of consciousness, this process of analysis and conversation is continued well into the period of full awakening of ordinary consciousness. Unless this is done, there is a danger that the material discovered will lapse back into unconsciousness. It has occasionally been observed that after the effect of the drug has worn off and another psychotherapeutic session has started, the patient may be completely unaware of what he revealed on the former occasion. If the material disclosed during the narcosis does not become part of the patient's conscious awareness of the facts and attitudes which are acting to produce his disordered state, his emotional release will be only temporary.

Often the mental patient will tell fantastic stories during narcoanalysis. The falsity of some stories may be apparent. Others will be plausible. The truth and falsity have to be worked out later by direct interview in a full conscious state. The hallucinatory experience, paranoid delusions, obsessional urges, sadistic and masochistic fantasy must be assayed and evaluated. Often the patient who seemed to be an anxious neurotic will disclose clear evidence of the beginning of a schizophrenic process, or the reactive depression will turn out to be an involutional melancholia or paranoia.

Narcoanalysis is not so much a therapeutic method itself as a method of entry leading to an appropriate course of therapy. It is a way of finding the psychological core of the trouble to which a therapeutic approach may be made. Sometimes the removal of some prominent symptom (through bringing it into consciousness) may only serve to reveal more fundamental and difficult symptoms which it concealed. One of the chief positive values of narcoanalysis is the removal of hysterical conversion symptoms soon after their appearance, since once they have become fixed they are much more difficult to remedy. If interrupted early and circumstances arranged to prevent their recurrence, the fixation of symptoms which mark a traumatic neurosis may be avoided.

Summary

The use of psychotherapy implies that we have acted upon the mind of some other individual by psychological means. There is little that is different in the procedures used in psychotherapy from those procedures which are used in getting along with normal people in everyday life.

The story of the discovery and the applications of hypnosis to the treatment of mental disorders typifies the history of many psychotherapeutic procedures. Hypnosis is nonspecific. This means that it does not enter directly into the healing process, but acts as an adjunct, palliative, or entry to the heart of the trouble. Freudian psychotherapy grew out of hypnotic therapy and is also nonspecific. It has proved more effective than hypnotic therapy in most instances. Its effectiveness grows out of a better understanding of the basic psychological problems involved in mental illness, together with a well-rounded reeducational procedure directed to the emotional difficulties.

Psychoanalysis, hypnoanalysis, and narcoanalysis are methods of getting around the resistances of a person so that he relates material which he cannot readily bring to consciousness. Having retrieved these memories and realized their implication, the patient with skillful guidance may be able to make an adequate life adjustment.

Group therapy, the method of Alcoholics Anonymous, and the like, supply the person who is maladjusted because of some essential personality weakness with a source of support on which he may rely in the absence of self-sufficiency. In brief, the aim of all psychotherapy is to bring the patient to a point of self-sufficiency or to the realization that he must confess his own inadequacy and place reliance on some form of outside strength.

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SECTION FIVE
DIAGNOSIS
AND THERAPY

Chapter 33 *Educational Guidance and Counseling*

In most of medical psychotherapy, the patient-doctor relationship is a basic component in treatment. The nature and quality of this relationship are frequently of more importance than the particular concepts or procedures that the doctor may employ; in other words, good therapists are more important than good therapies. Whenever a new physical technique for treating mental patients is announced, whether by drugs, surgical operation, or shock, a statement is usually included which points out that psychotherapy should be used as an adjunct. By this is meant that intelligent counsel, guidance, and rehabilitative steps should be taken to start the patient on the correct path to health. In the traditional patient-doctor relationship, the doctor is the authoritative, responsible, and active director. There are certainly variations in how active a psychological role the doctor plays in the situation but, on the whole, his status as a psychotherapist is directly comparable to the role played by the doctor consulted for heart trouble, skin disease, or a broken leg. His reassurances, persuasions, encouragements, and interpretations, psychologically are effective because of his authority and prestige. The patient-doctor therapy is generally known as the directive method.

An entirely distinct method of psychotherapy now being used in the treatment and prevention of personality disorders is called nondirective therapy. In essence, directive therapy is authoritarian, while nondirective therapy is permissive. The first rests on intelligent leadership, the second on opportunity for self-realization. In many therapeutic situations a combination of methods is employed. There is no evidence indicating that one method is always better than the other. There is evidence that a combination of methods gives good results.

Psychological counseling

One of the recent developments in the field of psychological counseling and guidance is the extensive use of nondirective counseling as it has been formulated and developed by Rogers.[14] Rogers has distinguished between directive and nondirective counseling in the following way. In directive counseling, the therapist takes full direction and leadership in the interviewing process. He formulates for himself and the patient the nature of the problem, its causes, and its treatment. He tries to bring the patient to some goal selected by the therapist, usually oriented to social conformity. Nondirective interviewing, on the other hand, is client-oriented, the counselor provides a permissive, understanding situation in which the "client" is encouraged to express himself as freely as possible, without the counselor guiding the direction of the interview, the expression, or the content brought forth by the client. A sympathetic "sounding board" for the patient's feelings and emotional attitudes is provided by the passive, permissive presence of the counselor. The counselor is responsive to the expressed attitudes and shows that he recognizes and understands what the client is saying. He does not take an authoritarian stand or imply approval or disapproval at any time. He may clarify the feelings that the client reports but he adds no interpretation, suggestion, or advice.*

The steps in the counseling process have been outlined by Rogers as follows:

(*a*) The individual comes for help and thereby accepts responsibility for working upon his own problem.

(*b*) After the helping situation is carefully defined, the counselor encourages free expression of feelings in regard to the problem that the client sees as his own.

(*c*) The counselor accepts, recognizes, and clarifies hostile and critical feelings, and tries to create an atmosphere in which the client can accept them as part of himself, instead of projecting them on others or hiding them behind defense mechanisms.

(*d*) Following full expression of these negative feelings, faint and tentative expressions of positive feelings appear which make for growth.

(*e*) These positive feelings are accepted by the counselor without praise or approbation. The client's acceptance of both positive and negative feelings gives him the chance for the first time, to understand himself as he really is.

(*f*) With clarification of possible decisions and the initiation of certain small but highly significant positive actions, there follows further growth toward increasingly integrated action.

* The nature of the nondirective procedure can be best understood by reading the published verbatim reports of actual interviews. Good examples of these will be found in C. R. Rogers, *Counseling and Psychotherapy,* Boston, Houghton, 1942, and W. U. Snyder (ed.), *Casebook of Nondirective Counseling,* Boston, Houghton, 1947.

The keynote of this therapeutic procedure is that through the release of feeling in a situation in which the client has no need to be defensive or to feel threatened in any way, the person is relieved of the tension-creating feelings and is able to view himself and his problems in a more objective and better integrated way. The most characteristic outcome of therapy is a freedom from tension and a different feeling of self-evaluation and self-perception. In discussing the more theoretical aspects of this therapeutic technique, Rogers [15] says that those tensions called psychological maladjustment exist when the organized concept of self is not in accord with the perceptions actually experienced. When the self is free from any threat of attack (as in the situation provided by the counselor), it is then possible for the self to reintegrate these previously rejected perceptions.

The nondirective counseling method has met wide acceptance by clinical psychologists. It has been applied to personal counseling, work with prisoners and delinquents, to industrial and personnel problems, and so on. There are numerous studies which have approached this therapeutic process in objective and experimental terms. It is to be hoped that other psychological therapies will be given the benefit of the same sort of objective scrutiny.

Certain objections and criticisms of the nondirective method have been advanced by Thorne [19, 20] who used the procedure with two hundred of his cases. He concluded that the nondirective approach is very successful in initiating contact with the patient, establishing rapport, and getting the patient's story. However, he felt that it was often better to be directive in actual therapy since the nondirective method frequently resulted in a loss of time and energy. Emotional overexpressiveness, which the method encourages, sometimes reinforces preoccupation with one's self. He objected to the inflexibility of method as advocated by some nondirective counselors who have belittled or rejected other therapeutic approaches. He concluded that this new method constitutes an important technological advance but should not be considered to represent a complete or unique system applicable to all situations.

The nondirective technique has greatest usefulness for those individuals in need of guidance who have the capacity to achieve reasonably adequate solutions for their problems. According to Rogers,[14] the method is not applicable to psychotics, feeble-minded, or children and adults faced with impossible demands from their environment.

The counselor-client nondirective therapy is an educational procedure. Other programs making use of the best features of educational methods as adapted to the particular patient or group of patients have long been employed. Through these programs the patient is permitted to develop his assets

and minimize his liabilities so that he may be able to lead a productive, self-sufficient existence. Included here are all of the procedures of occupational therapy, specialized education, physical training, and the like.

Educational therapeutic programs

Since various forms of educational programs are designed to fit the needs of particular types of cases, no generalized description can be presented. Instead, specific examples will be given for purposes of illustration. Although such programs may be adjusted to individual needs (they should be sufficiently flexible to do so), their main emphasis is not on the uniqueness of the individual person as it is in the patient-doctor or client-counselor relationship.

Activity programs

Physical activities for institutionalized patients have been organized and developed as therapeutic techniques. Included in this group are occupational therapy, physical therapy, supervised shop activities, educational classes, sports, avocations such as music, photography, and other forms of recreation. A well-organized and efficient activity program is far different from the basket-weaving and floor-polishing which have been used as time-fillers for hospitalized patients in the past. The emphasis in organized activity programs is not only upon stimulating interests, developing sources of accomplishment and satisfaction, and improving the physical well-being of the patient, but, most important of all, upon building up the incentive to get well, go home, and get a job. The activities appropriate for a given patient will depend on his physical condition, his mood, and the level of effort of which he is capable. For example,[4] it has been found that the hyperactive patient will accept only active activities while the depressed patient can only be interested in subdued activities. After the patient makes the original effort and starts to become interested in some specific activity, then the activity may be modified to meet his long-term therapeutic needs. The objectives of the program must vary with the particular type of patient. Recreation in the form of group activities encourages social participation and the development of interests outside oneself in place of continual self-preoccupation.

In the activity program employed [3] at certain of the better private mental hospitals elaborate schedules of educational classes and of university exten-

sion courses are combined with social and recreational activities in order to reeducate the patient to resume his place in the outside world. Courses in typing, accounting, foreign languages, and the like, which have practical significance for the patient are utilized in place of more unimaginative occupations which have little chance of practical application. The entire emphasis is on reeducation for living in the everyday world and the development of skills and attitudes that are meaningful in this context. Such a program is adjusted to the needs of different types of psychiatric patients at the level of function of which each patient is capable.

Several years ago Myerson [13] reorganized the facilities of a large state mental hospital to bring about the effect of a "total push" on the patients. Every patient who was not bedfast or physically incapable was involved in organized activity. Games, entertainment, and occupations were arranged for all. New and better clothing was provided; a better and vitamin reinforced diet was provided; beauty shop and barbering facilities were utilized. As a result of the total push some chronic patients were brought to a point where they could be paroled from the hospital, there were fewer deaths and the physical and mental health of the entire group of patients was improved.

A similar experiment [16] was conducted at a Veterans Hospital with eighty neurological patients, some of whom had not been out of bed for as long as ten years. Of these eighty cases, seventy-six became ambulatory and capable of self-care, and forty were sufficiently improved so that they could be discharged from the hospital since they became capable of caring for themselves at home. In the military programs of rehabilitation, activities were an important part of the integrated plan for convalescent care. These programs were found to reduce the period of hospitalization, offset the habit of invalidism and prevent the deadening psychological effects of extended hospital life. Morale improved when the patients were kept busy and interested in purposeful activity.

The beneficial results of total push are not limited to mental or neurological patients. For example, two groups of thirty patients each suffering from rheumatic fever were given contrasting treatment.[10] One group was treated in the usual way with bedrest, the other group was treated out of bed with encouragement and positive suggestion psychotherapy. There was no difference in the physical findings at the end of a six week period. But in mental health, the second group was much superior, in that there was only one case of cardiac neurosis and one behavior problem, as compared to seventeen cardiac neuroses and four behavior problems in the bedrest group.

Reeducation of organic defect patients

Reeducational programs for specific defects have brought forth a good deal of improvement in cases that in past years were considered quite hopeless. In addition to decreasing the amount of physical incapacitation, these organized schedules are extremely valuable in improving the psychological adjustment of physically handicapped patients. Morale is improved, and increased incentive for self-help results. In such organized reeducational classes, the program either by intent or by circumstance provides a form of group psychotherapy as previously discussed in Chapter 32. A group of patients with neurological disturbances resulting from brain injuries received during the war were retrained in a well organized "ambulation class." [5] One of the accomplishments developed in this retraining involved the ability to walk up and down stairs without assistance. Although less than 10 per cent of the group had this ability at the beginning of the class, more than 75 per cent could complete this maneuver several months later. In the course of retraining, patients developed more confidence in their ability to do things for themselves and a healthier attitude toward their disabilities. With increasing self-confidence, physical improvement advanced.

Until World War II aphasia was usually regarded as a true loss of orderly speech for which little or nothing could be done to assist recovery of function. Granich [8] has described the process of retraining of aphasic patients as one which requires practical judgment and flexibility of approach. Retraining should be individualized but certain general principles in retraining were formulated. It was found desirable to develop compulsive-obsessive habits of work at an early stage. Continuing drill and practice were necessary unless spontaneous recovery or roundabout methods of performance occurred. When there was little hope of general improvement, success in minimum concrete objectives could be achieved.

Education of postencephalitic children

A group of children particularly difficult to educate in the usual classroom routine is made up of those who have suffered from encephalitis lethargica during childhood. Postencephalitic behavior disorders in children consist of restlessness, overactivity, uncontrolled aggressiveness, disobedience, truancy, and sexual offenses. Some of these deviations may be attributable to poor training during convalescence, but in most cases the behavior disorder is a result of inadequate emotional control and hyperactivity which cause overreactions to a wide range of stimuli.

A group of forty-eight postencephalitic children, together with a group

of fourteen "problem" children who had not had encephalitis, were the subjects of a special educational program at the Pennsylvania Hospital under the direction of Bond and Appel.[2] These children were admitted to the hospital school where the buildings, schedule of activities, and staff of teachers and nurses had been specially selected for such a plan of remedial education. Although intensive medical observation had been part of the original plan, the educational considerations were found to be of primary importance. Planned school work and play were organized in such a way as to exercise the most favorable effect upon the conduct of these children. A peculiarity of the behavior of encephalitic children was seen in their intense emotional reactions to their families. Therefore, all members of the institutional staff were explicitly directed to maintain an impersonal and patient attitude toward the children. A direct attack upon the behavior disorders was attempted with methods to develop more wholesome attitudes and more constructive behavior on the part of the children. Nothing very new or different was tried, but the best methods of education that had been developed both in theory and practice were integrated into the training system. Schedules of the child's time were carefully worked out so that he had a regular routine to follow. Outlets for strenuous activity were provided, in order to enable the child to express his overactivity without restraint at planned times and under certain conditions. In general, praise and reward were used rather than punishment. With these children it was found that systematic deprivation or explanation was of educational value where dogmatic discipline or physical punishment only increased the destructive behavior. In extreme cases, isolation from the group and isolation within the group (other children were instructed not to speak to the disobedient child) were the most severe forms of control used. Distraction and diversion by teachers and nurses were frequently able to avert oncoming temper tantrums or fights between children.

Of the forty-eight postencephalitic children, all but two showed improvement; and of the fourteen nonencephalitic problem cases, all but one improved. These results indicated that the children were able to learn by experience and to adjust to institutional life when their care and education were handled by a staff that understood their individual personality needs. Of twenty postencephalitic children sent home, 35 per cent made a good adjustment at home (exclusive of six cases who were feeble-minded). These results are important since practically all cases of this sort had been reported by previous investigators to be almost completely refractory in their response either to ordinary home or school instruction or to special institutional training.

Psychodrama

The technique of spontaneous dramatic presentation of a life situation which has occurred or which may occur and which is associated with one or another form of mental trouble has been developed by Moreno.[12] He terms the procedure "psychodrama." It has been employed effectively with neurotics, delinquents, and psychoneurotic war casualties. The patient is encouraged to act out in a "play" various roles which portray himself and others in different life situations. Extremely vivid enactments of these roles may take place as the basic problems and conflicts of the individual gain expression. Two values result. First the "acting out" gives the patient an opportunity to discharge tensions, anxieties, and hostilities in a relatively uninhibited fashion, so giving vent to repressed material which he probably could not express otherwise. Second, by creating a variety of "acts" in the play the patient can work out possible situations which may have been associated with the beginnings of his troubles and so better evaluate what did happen. Or he may in different "acts" work out various possible solutions to his problems so reaching a method which he can tolerate and which is at the same time acceptable in the community of which he is a member. Since many neurotic complaints are associated with disturbances in interpersonal relationships, the psychodramatic method has special educational values in some cases.

Reeducation of the delinquent

Sheldon and Eleanor Glueck [6] traced the criminal careers of youthful delinquents who had come before an outstanding juvenile court and had been treated at a leading child guidance clinic. They investigated the records of a thousand boys who had been referred by the court for clinical examination. The average age was thirteen to fifteen. About 88 per cent of the juvenile delinquents continued misconduct during a five-year period after their official treatment. There was but slight association between the nature of the juvenile delinquencies of the group and the kind of offenses for which they were later brought to court. The general implication was that the clinic and court did not prevent the further development of delinquent careers. Neither agency can be depended on as a cure for delinquency or for the prevention of its development into criminality.

In another series of studies the Gluecks [7] followed for fifteen years the careers of 510 offenders who had been sent to a Massachusetts reformatory after having been through the court and clinic. Of this group, 439 were still

alive at the end of the fifteen years. More than one half of them were directly interviewed, while indirect evidence obtained from employers and families provided information concerning the remainder of the group. Over the years, the extent of their criminal conduct showed some tendency to decrease. At the end of the first five-year period, 20 per cent were nondelinquent; at the end of ten years, 30 per cent were nondelinquent; and at the end of fifteen years, 42 per cent were nondelinquent. Further evidence of improvement was found in the relative increase of minor offenses over major offenses. Most of those who, for one reason or another, "went straight" did so during the first five years, with a decrease in the rate of rehabilitations as time went by. On the whole, the study revealed the relative ineffectiveness of our attempts to rehabilitate or reeducate delinquents who start a criminal career early in life. If the prevention of recurrent criminal offenses is regarded as the chief aim of punishment, then present methods of handling such persons are ineffective. It is possible that the use of indeterminate sentences with release of certain groups of prisoners when they reach certain stages in their mental development might help the situation. In general, both the usual procedures of dealing with criminal and delinquent careers have been found to be discouraging in outcome and in hope for general improvement in social conditions.

Some light on the basic reasons for the failure in rehabilitation as a result of more or less usual court and reform-school methods was provided by a follow-up study reported by Bronner.[1] When careful diagnosis was made the delinquents who gave evidence of early mental or personality disorder had a much higher frequency of "unfavorable" careers than did those who were essentially "normal." A program of educational and vocational guidance was more effective with the "normal" delinquents than with the "abnormal." It seems probable that part of the difficulty in reeducation of the delinquent has been a lack of individualization of the educational program. It is true that the large percentage of psychopaths, neurotics, and morons for which little or nothing is known in the way of effective therapy provides an overlarge percentage of unfavorable careers. Lack of clear diagnosis and special educational guidance has led to poor results with "normal" delinquents. There is still great room for improvement in the methods of reeducation used with delinquents.

Education of the feeble-minded

Special educational programs directed toward the training and possible improvement of the feeble-minded have engaged the interest of many persons

during the past two centuries. We have pointed out in Chapter 17 that the problem of the feeble-minded is by no means as hopeless as it was sometimes thought, nor can as much be accomplished as many have desired. Both the progress and the limitations can be better understood and appreciated if certain historical occurrences are presented.

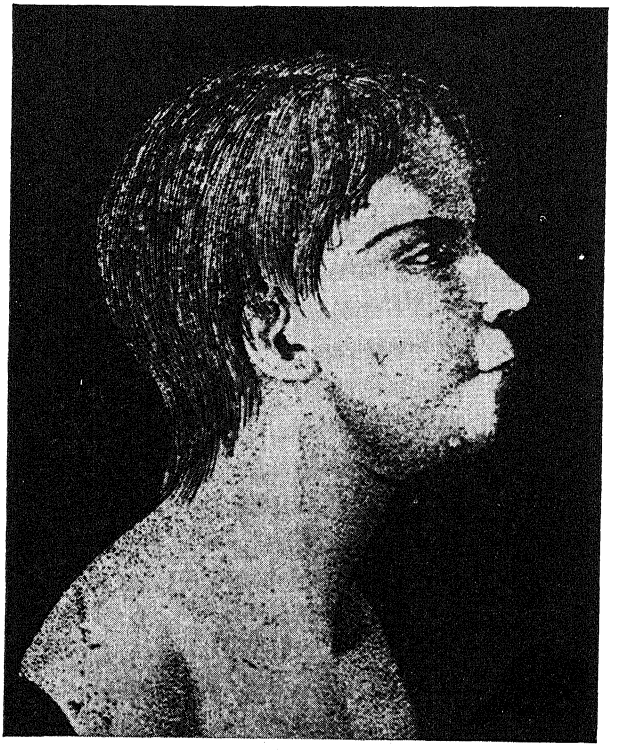


Fig. 44. The Wild Boy of Aveyron.

An outstanding and authentic instance of a retarded child, originally completely untaught, who was thoroughly studied was the "Wild Boy of Aveyron." He was captured in the Caune Woods in France in September, 1799, when he was apparently about 12 years old. At this time there was great interest in the "natural man," that is, a human being who might show the natural, native human responses untouched by the effects of society. Hence the capture of the wild boy aroused great public curiosity, so that he was brought to Paris where he was visited and studied by many doctors and scholars who wanted to see man in his primitive state.

Instead of a "Noble Savage" they saw "a degraded being, human only in shape; a dirty, scarred, inarticulate creature who trotted and grunted like

the beasts of the fields, ate with apparent pleasure the most filthy refuse, was apparently incapable of attention or even of elementary perceptions such as heat or cold, and spent his time apathetically rocking himself backwards and forwards like the animals at the zoo." * As far as his early history could be reconstructed, he had been abandoned in this forest several years (?) before he was captured.

The boy was examined by Pinel, the leading specialist in France, who pronounced him an incurable idiot. Itard, a young medical man, "fired with the notion that science, particularly medical science, was all-powerful, and perhaps believing that his older colleague was too conservative in applying his own principle of the curability of mental disease, came to the conclusion that the boy's condition was curable." † Itard thought that the boy's state resulted from his lack of education and opportunity to imitate and be influenced by human society. Since he had been greatly impressed by the philosophers Condillac and Locke, Itard saw this boy's mind as a *tabula rasa* (a blank page) upon which experience which develops the normal mind had not yet written. He undertook with great patience and ingenuity to supply the mental and moral education that the boy had never had. His educational program included the following aims: interest in social life, increased sensibility to stimulation, a wider range of ideas and mental processes, and the use of speech.

Victor, the name Itard gave the Wild Boy, was a most unpromising subject. His eyes were unsteady and expressionless, and his hearing was equally unresponsive to the loudest sounds or the most touching music. A uniform guttural grunt was the only sound that he made. He showed equal indifference to the odor of perfume and the fetid odor of filth. He seemed lacking in memory, judgment, and the ability to imitate. He was incapable of grasping the idea of climbing upon a chair to get food that was placed outside his normal reach. He made no attempt at communication by expressive movements. He managed to escape on several occasions, so that he had to be watched or kept in a locked room. His gait was either a trot or gallop, and he had "an obstinate habit" of smelling any object that was given him. He showed neither interest nor affection toward those around him.

His sensitivity to cold and heat was very much below normal. When glowing embers rolled onto the hearth, he would pick them up with his bare fingers and replace them upon the fire without any particular haste. He was several times observed to pick potatoes out of boiling water with his fingers

* J-M-G Itard, *The Wild Boy of Aveyron.* (Trans. by G. and M. Humphrey.) New York, Century, 1932, vi-vii.

† J-M-G Itard, *ibid.*, vii.

and consume them while they were boiling hot. When Itard undertook to "prepare the senses to receive keener impressions," the stimulus of heat was applied in all possible ways. The boy was clothed, put in a warm bed, and given hot baths. After some time he showed himself responsive to temperature differences by testing the bath water with his hand and refusing to enter the tub if the water was only lukewarm. Similarly, he came to view his clothes as a means of keeping warm. Itard also used electric shocks and other forms of sensory stimulation to "increase his sensitivity." Gradually, his senses of taste, touch, and temperature improved, but there was no rapid improvement of responsiveness to sight or hearing.

Since Victor showed no interest in the usual toys and games that children of his age enjoyed, an attempt was made to develop those few interests he had, such as walks in the fields. He did not care for any sweets or highly seasoned food, but displayed obvious signs of joy when he was taken on trips to town or supplied with large quantities of his favorite foods.

In an attempt to "exercise the intellectual faculties," Itard tried out many ingenious ways of putting obstacles between Victor and his desires. These obstacles were expected to bring into play the boy's attention, memory, judgment, and sensory impressions. One of the most interesting experiments was based on his tendency to orderliness. He had been observed to place objects of furniture back in their original positions when they were displaced and to restore pictures to their former places on the walls. Itard hung objects on the wall with a drawing of each object placed above it and left them there for some time. As soon as an object was removed, Victor would return it to its proper position. Even when the order was changed, he returned all the objects to their correct positions. In the beginning, this activity was based solely on a memory factor of position. However, when the number of drawings and the frequency of their transportation were increased, the boy finally resorted to inspection of the drawings in placing the objects.

This observation led Itard to try a more complicated matching procedure. He pasted paper figures upon a board; one figure was a red circle, another a blue triangle, and the third a black square. Similar models of cardboard were made and placed over the figures pasted upon the board. When they were removed, Victor was able to replace them without difficulty. Shifts in the order of the figures indicated that he was using a process of comparison. Some days later Itard changed the board; this time he used the original figures, but all were of the same color so that the only difference was in the shape of the figures. Finally he added another change in which form was held constant and only color varied. Under all these circumstances, the boy was able to perform adequately.

The next task consisted of controlled variation of color and form. In one experiment, a long parallelogram was used with the square, and in a second experiment, a greyish-blue with a sky-blue. After some mistakes the boy mastered both problems. Itard proceeded to add new and more difficult complications until these exercises "finished by fatiguing his attention and his docility." Violent motions of impatience and rage appeared, and Victor threw the figures on the ground with vexation and made for his bed in a fury. When Itard persisted over several days in forcing him to try to do these tasks, the boy's fits of anger increased in violence. He became so destructive that he bit the sheets, blankets, and mantelpiece, scattered the ashes and andirons over the floor, and ended by falling into convulsions like those of epilepsy. These attacks became more frequent and were apt to appear at the slightest opposition or even without determining cause, so that Itard gave up this type of testing procedure.

It is worth noting that in these tests Itard employed in a rudimentary fashion the methods which over a century later were called the sorting test method, the method of equivalent stimuli, and the introduction of an experimental conditioned neurosis.

The changes in the boy that Itard accomplished in nine months of work were startling. Victor's life changed from an unresponsive, animal existence to one in which he could compare, discern, and judge, and "apply the faculties of his understanding to the objects related to his instruction." At the end of two years of training he was no longer a Wild Boy but a clean, affectionate child. He responded to certain written words and understood much that was said to him. Itard continued working with Victor for four years, but during this subsequent period he suffered many disappointments over his pupil. In spite of the most careful attention and teaching, the boy never became a normal human being. He never learned to make more than a few sounds that had communicative significance.

In summing up the results of his training program, Itard admitted that only a very limited effect had been produced by the most intensive methods of education. These limitations were attributed by him to the almost complete "apathy" of Victor's organs of hearing and sight. This apathy, he said, was permanent. The improvements that were obtained were disappointing in terms of the standard of normality, but they were considerable in terms of the Wild Boy's state at the time of his capture. His senses of taste, sight, and touch had become much more differentiated, his relations to objects and people were more complex, and he could express his wants and follow simple orders. He had grown to be responsive to affection and attention from others, and learned to be ashamed of mistakes and outbursts. The absence of

contact with other people and the usual course of experience in childhood had led to behavior patterns which were changed by Itard's intensive training program. However, the improvement was so limited that his mental status could not be attributed solely to the deficiencies of his early environment. He could not be taught to be a normal human being and Pinel had been correct in classifying him as feeble-minded.

The particular importance of Itard's experiment centered around the fact that Victor could not proceed beyond a certain level of accomplishment in spite of patient, ingenious, skillful tutoring. There was a definite limit to his potential development. At the same time, the amount of change that was brought about, especially during the first two years of Itard's training, served as an indication of the way in which education and social relationships affect perception, discrimination, and behavioral patterns in general.

The case of the Wild Boy illustrated the point that mental defectives were, within limits, trainable. This observation stimulated Seguin, who was Itard's pupil, to develop more adequate training methods. He formulated a systematic training procedure for the feeble-minded based on what he called the "physiological" method. He incorporated these ideas in his lectures and gradually succeeded in stimulating interest in the problem of educating mentally retarded children. It was not until many years later, however, that these and other principles were put in actual use in special classes and schools for mental defectives.

The next great development in the field of education for the feeble-minded was made by Goddard,[5] who developed a new educational policy for the mentally deficient. From the days of Itard, efforts had been made to provide them with the usual formal education, with the emphasis on reading, writing, and computation as a means of increasing their defective mental capacity. Special training, designed to stimulate sensory and perceptual acuity, had also been stressed. Goddard abandoned this procedure, showing that it had never been effective with true mental defectives. In place, he substituted manual training; training in the simpler arts and crafts which were within the scope of the ability of an ament. He emphasized the point that *a feeble-minded person can be trained but not mentally improved.*

Goddard also translated, expanded, restandardized, and applied the intelligence test method devised by Binet (Chapter 30). He was the first to recognize its great value as a method of diagnosing the presence and degree of mental defect. As a result of this test method the entire group of mental defectives were taken out of the realm of uncertain diagnosis and a sound policy of care, training, and educational guidance became possible.

The educational problems of each of the various degrees of mental defect are different. Procedures and objectives can and are devised to meet the needs of each level of ability. With the lower grade idiots, very little can be achieved in the way of training, apart from some habit-training in self-care. Imbeciles are, within limits, trainable in simple tasks. Morons show a wide variation in their adaptability to training and this variation depends, only in part, on the IQ level. It is largely determined by personality and emotional traits.

That the exogenous or brain-injured child who is mentally defective requires special educational methods has been shown by Strauss and Lehtinen.[18] Such children have special handicaps in perception, emotion, and thinking so that the usual educational procedures are ineffective. These children are abnormally responsive to environmental stimuli and they react unselectively without conscious intent because they cannot disregard irrelevant stimuli. They are extremely mobile in attention and activity. The environment must be controlled so as to reduce distracting stimuli in order that the child's ability to manipulate objects in the environment and his own voluntary control may be developed.

In general, the content of the teaching must be fitted to the defective child's capacities. Individualization of education is an important part of the philosophy of modern education. It has been recognized that an intellectually gifted child is out of place in a classroom of children of average intelligence. The methods of instruction required by ordinary children do not suit the educational needs of the exceptional child and may result in his becoming bored with the classroom procedures and so fail to stimulate him to the functional levels of which he is capable. The other side of the picture is shown by the subnormal child who has great difficulty in keeping up with average children of his age and, therefore, fails to profit from the methods of instruction appropriate to them. A child who is out of his depth intellectually tends to develop behavior disorders in class and may become a "problem child." If he is placed in a class of children of about the same level of intelligence, his anti-social behavior may disappear.

One of the most promising educational objectives consists in training mental defectives to seek help and advice in the solution of their social, vocational, and personal problems. The normal person knows enough to seek assistance and advice when real problems confront him. Those of low intellect do not realize when they are faced with a real problem, nor do they know where to seek help, or how to distinguish between sound guidance and unfair exploitation. Conversely, social workers, psychologists, and psy-

chiatrists, who are expected to advise the mentally retarded, must have a sound appreciation of the effects of limited mental ability and of the community resources available for helping these persons.

Where to seek psychological guidance

Only a very small per cent of psychological problems that beset mankind are ever dealt with by the psychiatrist or psychologist. In the majority of instances there is no reason why they should be. People with problems usually take them to their most trusted friend, to their priest, pastor, or minister, to their family doctor, or to their lawyer. Everyday common-sense advice given by a wise and competent person who makes no pretense of special psychological training is sufficient. However, there does remain a fraction of all of human problems that do not yield to the competent application of common sense.

In these instances where do people take their troubles? [17] The answer is, "Almost anywhere," from the most blatant and incompetent quack to the most skilled psychiatrist or clinical psychologist. A glance through the classified section of the telephone book of any large city, under the heading "Psychologist," will give the student some idea of the diversity of persons and organizations who are offering personal guidance. Since psychologists are not (or are but rarely) licensed, there is nothing to prevent any charlatan setting himself up in an office and calling himself a psychologist. Since the number of psychologists who are now trained or being trained in the specialty of psychological counseling and guidance is rapidly increasing, it is to be hoped that certification and licensing will soon be made part of the law so that the public may be protected against frauds.

The American Board of Examiners in Professional Psychology and the American Board of Psychiatry and Neurology now award diplomas to psychologists and psychiatrists, respectively, who after examination are certified as competent in their specialty. Anyone seeking professional help in the solution of his personal problems should be certain that the person he is consulting has such a diploma.

Summary

A new development in psychotherapy which grows out of the general philosophy of progressive education is nondirective counseling. This method has proved quite successful in dealing with the needs and emotional difficulties experienced by many otherwise normal people. It provides an outlet

for fears, anxieties, and indecisiveness in such a fashion that the person may solve his own problems and secure greater self-independence thereby. Such persons require an understanding, uncritical person to tell their troubles to in a way which releases their pent-up feelings and develops a more objective attitude and understanding of the problems involved.

Adequately planned and integrated educational programs are valuable techniques in the field of treatment of personality disorders and mental defect. When all facilities for stimulation and motivation are incorporated in a well-rounded educational program, it has been found that many patients of widely differing types can be helped. In the case of physical disease, as well as mental disease, unfortunate patterns of invalidism and institutionalism can be avoided by effective activity programs. For certain types of disabilities the use of educational measures is the only therapeutic measure available, and in these cases it is usually not a case of "cure" but of teaching the patient how best to get along with whatever handicap may be present and live a satisfying, productive life. Educational methods alone cannot be expected to solve all the problems of abnormal psychology. No one has yet advanced an educational system which would prevent the development of manic-depressive psychosis or schizophrenia. What education can do is to contribute to the full development of the individual's abilities and assets, and to aid in the management of his social adjustment. It is also able to provide methods and techniques of retraining and rehabilitation for persons who are physically, intellectually, or socially deviant.

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SECTION FIVE
DIAGNOSIS
AND THERAPY

Chapter 34 *Mental Hygiene*

ALTHOUGH FINAL ANSWERS TO MANY OF THE QUESTIONS WITH WHICH abnormal psychology is concerned are not available, it is true that a fair number of questions have satisfactory answers and many questions can be answered in part. Abnormal psychology is still plagued by ignorance, prejudice, unwarranted fear, false opinions, and ungrounded theories. It is apparent that much can be done in a positive way to remedy mental troubles and mental illness. It is further apparent that there is no method that is universally effective, but that the problems of each person must be dealt with in an individual fashion. Lastly, it is apparent that mental hygiene is no parlor game for amateurs; that there is as much chance of damage at the hands of misguided enthusiasts who try to help a neurotic to "face reality squarely" as there is when the same sort of persons advise exercise for that tired feeling of the active tuberculous patient.

Mental hygiene is a much abused concept. It originally meant, and still should mean, the systematic practice of measures for the preservation of mental health. There are ways in which certain forms of mental illness can be avoided or the illness made less severe. There are ways to assist in the maintenance of mental health after recovery from mental illness. There are also hundreds of methods which purport to be mental hygiene ranging all the way from harmless to dangerous, which are essentially unrelated to mental hygiene.

In this chapter we will attempt to summarize those practical procedures which modern medical science holds to be of value in mental hygiene. We will reconsider each of the major forms of mental disturbance in terms of its nature, treatment, and prevention. A double method of presentation will be followed, (*a*) what to do when someone else is concerned, and (*b*) what to do if the problem should be you, yourself. What we have to say is not

the precise methodology of the physician or clinical psychologist; rather it is the practical information which any well-educated citizen should possess.

The neuroses *

Psychologically speaking, any neurosis expresses itself as an undesirable emotional condition, generalized and consistent, without known organic basis and beyond voluntary control. The neurotic complains of shyness, inhibitions, anxiety, guilt feelings, phobias, obsessions, or hypochondriasis. He really suffers from his symptoms. Since his complaints are also inflicted on his friends and relatives, they may "suffer" with him—or they may try to avoid him. Usually the neurotic is quite willing to follow suggestions and to take advice. Almost invariably he follows such guidance only to a point which demonstrates either that the procedure is valueless in his case, or that it may make him even more uncomfortable than he was before starting the procedure. If he has tried most of the well-meaning advice of friends and relatives for several years, he usually concludes that no simple method is of any value, and has a standard reply, "I tried that and it only made things worse." He will insist that only a new, or most unusual, or a very expensive method can be of any assistance. He is also convinced that such new, unusual, or expensive methods are practically impossible for him to attain. He cherishes his illness and seems to "enjoy" his sufferings. This is termed *sickness benefit* and is, for the most part, an unconscious mechanism. The normal person will say in exasperation, "He could get well if he wanted to, but he doesn't want to." Actually, he does want to get well, and is seeking health, but in an ineffective way.

What can one do to help the neurotic? Assuming that efforts have been made to get him interested in or diverted by things outside himself; rest in the country, travel, logical arguments, and attempts at psychotherapy have failed; and that the problem of maladjustment still remains, then three courses of action are open. One can consciously and consistently try to adjust one's own life to endure the neurotic complaints; a further attempt to force a real therapeutic effort may be made; or one can put as much distance as possible between oneself and the neurotic and maintain that distance.

As a usual thing, trying to get a neurotic individual to adjust adequately to anyone else is like trying to get the mountain to come to Mahomet. Trying to adjust oneself to a neurotic is no easy task, but at least it is a bit more productive than continual, unsuccessful attempts to change him. Neurotic

* An informative survey of the practical problems of mental hygiene will be found in P. Polatin and E. C. Philtine, *How Psychiatry Helps,* New York, Harper, 1949.

traits can be looked upon in a rational, objective way—as being an unpleasant and unavoidable part of the particular personality. The mere fact that such conduct is viewed in a detached manner enables one to discount it somewhat. Neurotic behavior should not be interpreted as sheer perverseness, or as an intentional personal attack. One's own psychological flexibility and tolerance will determine how well one can adjust to the complaints of a neurotic person.

Psychoanalysis or some similar form of intensive psychotherapy is expensive in both time and money.* Part of the effectiveness seems to depend on the fact that the patient must pay, and pay to the point that it adds to his discomfort. The results of intensive psychotherapy are largely determined by the wisdom and experience of the therapist, and by the neurotic's age, intelligence, and desire to get well. If, then, the neurotic has entered on a course of intensive psychotherapy, his family should be prepared to support the effort, both financially and with helpful understanding and forbearance for several years. If a serious physical illness required surgery which was expensive and from which recovery would be slow and not too certain, and if this surgery were the only known way, one would not hesitate to follow advice and to pay the price. The same attitude must be adopted if one is going to stand by while a neurotic undergoes intensive psychotherapy. One should be willing to be guided by the therapist so that one will not be a hindrance to the therapy, and may be of assistance. It should be borne in mind that not all neurotics are improved by therapy, and that in spite of the time, money, and care, there may be no improvement—or the condition may become worse.

If the neurotic condition, in its early stages, is mild, or seems to be a problem of decision, adjustment, guidance or the like, then the nondirective methods are certainly of value. The "client" (he is not a patient yet) needs a friendly but impersonal listener who will afford an opportunity for him to talk out his own solution with nothing more than comments and information as to where certain assistance may be obtained. One hears the remark, "I know I need help, but I don't want psychiatry, for I'm not that sick." There is a real psychological point in such an observation. The person who has not given up or been overwhelmed can sometimes be helped by psychological guidance while psychiatric therapy will fix the notion of a neurotic illness in an unnecessary fashion. But note that this is recommended only in mild conditions.

* Be cautious in the selection of a psychotherapist. If no adequate source of information is available write either the National Committee for Mental Hygiene, 1790 Broadway, New York, N. Y., or the American Psychological Association, 1515 Massachusetts Avenue, Washington, D. C., for information.

When the neurosis is severe and continues after intensive psychotherapy has failed, and the patient is completely unable to work or has threatened suicide because of the condition, then electric convulsive therapy or even psychosurgery may be necessary. Decisions with respect to therapy of this sort must be left to the judgment of a competent psychiatrist. Though the therapy may seem "heroic," the number of neurotic patients who were refractory to psychotherapy but were very much improved by these methods has more than proved that these methods have their place.

The final course open to one who has attempted to deal with a neurotic and failed is to put as much distance as possible between oneself and the neurotic. Suppose, though, that this problem exists in a member of your immediate family. You are married to the neurotic, or the neurotic is your parent or your child. Actual experience does show that separation is advisable in some instances. It may be that you are a contributing element in the neurosis. Perhaps your absence will do as much to relieve the symptoms as anything else. You must make a rational decision yourself, since the neurotic cannot.

Next, suppose you have a neurosis. What can you do personally about your own mental hygiene? The chances are that your condition has existed in varying degrees of severity most of your life. Since it probably will continue in much the same fashion the rest of your life, an intelligent course of action is to *make the best of it.* Because of the periods of mental turmoil and of acute physical pain, you may miss much of the health and happiness of the average person, but you should be able to find many acceptable substitutes in your achievements. There may be periods in your life when your mental anguish will seem unbearable and uncontrollable. Such periods you must live through. You must discover for yourself the surroundings and the ways in which that can best be done. Other periods will come when you can be productive in the use of your special skills and talents; make the most of them without overdoing things.

Neurosis due to trauma and prolonged stress is similar to, though not wholly identical with, ordinary overfatigue and exhaustion. Almost any normal person can by prolonged, intense physical and mental stress be reduced to a whining, complaining, emotional, irrational state. It takes much more stress to reduce some people than to reduce others. Everyone has his own level of resistance to stress, and this individual level varies in accordance with physical health, previous strain, and the like.

Let us say that you had never before had neurotic symptoms. Then, together with family difficulties, you had influenza and lost your job. Since then you have had acute anxiety, persistent fatigue, and vague but distressing

physical aches and pains. You go to a doctor and tell him that you are afraid you are losing your mind. Your friends and family, realizing something is wrong with you, may have said that you are suffering from "nervous prostration," or have used some similar phrase which you have heard connected with insanity. What can you do about your own condition?

Most persons who have never had a neurotic period previously, and who develop one after stress, recover. Rest, a change of scene, temporary release from the responsibility or decisions demanded from one, and chance for physical rehabilitation, reassurance, sympathy, and a degree of self-understanding, all act to speed recovery. The quicker this relief can be obtained, the speedier and surer the recovery. Two conditions are known which may fix or greatly prolong the neurotic episode; continuation in or near the circumstances which precipitated the state, and the conscious (or only partly conscious) belief that a continuation of the state might somehow be of personal benefit. Let us assume that the neurotic symptoms have appeared after prolonged stress, and that the methods used have only partly alleviated the symptoms. Since it is fairly certain that the same old routine is very likely to begin again, these neurotic symptoms are very apt to continue and to become more firmly fixed.

There is a temptation to believe that the neurotic symptoms which are now a source of some benefit, such as sympathy, financial compensation, or an improved status in the family, will continue to have these benefits and perhaps the suffering is worth it. If you succumb to such temptation, the neurosis will probably continue.

Recovery from this variety of neurosis demands that you have a chance at rehabilitation and self-understanding. Rehabilitation can be sought and found. It need not be expensive and requires but a modicum of imagination. Self-understanding is largely a question of intelligence and one's willingness to accept reality on terms not too different from those accepted by one's associates. If you are able to realize that your problem is not unique, that help is available, and that there is more to be gained by being healthy than by being an invalid, you are on the way to health.

The psychoses *

If there is any reason to suspect that a person has a psychotic condition such as dementia praecox, manic-depressive psychosis, involutional melan-

* An excellent and valuable little book dealing in an understanding way with these particular problems is E. M. Stern and S. W. Hamilton, *Mental Illness: A Guide for the Family*, New York, The Commonwealth Fund (41 East 57th St.), 1944.

cholia, or general paresis, there can be no doubt as to the proper line of action. Such a person should be brought to the attention of a competent physician who is qualified to diagnose mental disease. If there is a psychosis, the person should be hospitalized or provided with special psychiatric nursing care at home. No friend or relative is really qualified to treat or care for a psychotic patient. In the acute stages of the illness, regardless of whether or not the psychotic patient is disturbed, continuous supervision is necessary. Suicidal threats and attempts are not uncommon. Such threats and attempts may be made only for the purpose of gaining attention, but actual suicide occurs with sufficient frequency to warrant the enforcement of extraordinary precautions at any mental hospital. During every phase of a psychosis, the patient may threaten or attempt homicide or bodily injury to others. This may be only a bluff, but no one who has had experience with such patients ever takes a chance with them. The fact that laws of many years' standing state that insane persons are committed to institutions so that they may be protected from themselves and that others may be protected from them is the fruit of centuries of human experience.

On occasion, parents will plead that their psychotic son has always been a shy, studious, well-behaved boy, and that there is no reason why he should be kept in a hospital. They will say that his illness is due to his shyness and brooding nature, and that it is only temporary. They will make efforts to get him into contact with young people and insist that he lead a "normal" life. This is usually one of the most unkind things that can be done to a psychotic patient. It may be compared to insistence on vigorous exercise and competitive sports for a patient suffering from active tuberculosis.

The family members may be strongly opposed to "putting their relative away." This prejudice should be avoided. It can be avoided if they can be made to see that the problem is one of mental illness. Neither the family nor the physician should refer to the patient as being "insane" or "crazy." Mental illness is no more nor less a disgrace than any form of physical illness. The chances of recovery vary with the types of the disease, but even the poorest prognosis is no worse than that in many of the more serious forms of physical illness.

There are many unfortunate beliefs concerning mental hospitals which years of public education have not been able to change. Mental hospitals are not filled with sane people held there against their wills. Patients are not maltreated and abused. At worst, they may receive too little attention from the doctors and attendants, but even so, the hospital has facilities for treatment and control of patients that make it far superior to treatment and control at home. The physical arrangements of the hospital protect the patient

from himself and others from him. Life at the institution is a simple, routine life without the complex problems for adjustment that home life entails. The patient does not have to make decisions for himself and, although to the normal person this may represent prison life, to the abnormal it usually constitutes a haven. One patient wrote, "The steady routine of the hospital soothed my mind. It was a relief not to have to make my own decisions. I knew what time I had to get up, when I was due in the kitchen, when to eat, when to rest or walk. No agony or hesitancy." *

It sometimes happens that friends or relatives blame themselves for the mental illness of another. Only in the rarest instances is such a self-accusation justified. They would not blame themselves if that person had developed cancer or brain tumor. For a mental illness, the same attitude should be taken. Get the patient to competent medical care as soon as possible, and having satisfied yourself that this care is competent and that the hospital is a real hospital and not a custodial institution, then you have done all you can and no blame or self-reproach is warranted. Statements that the patient may make which show resentment must be attributed to his mental condition and not to faults on your part. But do not forget the patient. Visit him regularly. Tell him about the simple everyday things of life at home which interested him before his illness. See that simple desires for candy, cigarettes, newspapers, and the like are met. Even if he seems mute or antagonistic continue the visits. Nothing is more appreciated by the mental patient than ordinary human kindness and the reassurance that he is not a forgotten outcast.

If the doctors ask permission to use some form of therapy such as shock or psychosurgery, try to obtain information as to the possible outcome and what sort of behavior may be expected to follow the treatment so that you can adjust to the possible new circumstances which a change in the patient's behavior may bring about.

Try to do something as a citizen to improve the conditions which exist in many mental hospitals. Usually these conditions are the result of scanty funds and public neglect. Better hospital care will affect not only the patient you are interested in but many others as well. The care of persons suffering from mental disease gives rise to part of our heavy tax load. Prevention and better hospital care and treatment should reduce the length of time the patients must remain in the institutions and hence lead to a reduction in taxes. Cheap care is the most expensive in the long run.

How can you personally know whether or not you are "going crazy"? Can a psychotic person recognize his own illness? If your mind is truly dis-

* E. Krauch, *A Mind Restored.* New York, Putnam, 1937, 110.

ordered, you will not recognize your own condition, save in a vague way, at the onset of the disease. This is the basis for the old saying, "If a man thinks he's crazy, he's not," or the medical observation, "As long as there is insight, the prognosis is good." If your family or friends insist that you should consult a psychiatrist, comply; and if the psychiatrist advises you to enter a hospital for care and treatment, his advice should be accepted and followed. No one likes to be sick and no one wants to be mentally ill, but self-medication and self-treatment have never been too effective for any sort of illness, particularly mental illness.

If you are mentally disturbed, you will find the hospital both a relief and a source of annoyance. At the hospital no one expects you to make decisions, to be very active, or to manage your own affairs. The care you receive may be standardized, but you will be treated as a sick person and be protected from the world and from yourself. You may be annoyed by certain rules, the locked doors, and by other patients, but the annoyance will be overbalanced by the relief afforded through the care and protection. To the best of your ability, follow the advice, counsel, and treatment given by the doctors and nurses, even though they may seem to you to be unreasonable or unnecessary at the time.

Personal mental hygiene enters into these conditions after you have begun to get well, and especially after you have left the hospital. The convalescent period for any mental illness is prolonged. Recovery is slow. The weakness is exasperating. You will be irritated by the advice or activities urged by relatives and friends. Eventually the efficiency which prevailed before the illness will be achieved. Any recovered patient has to learn to ignore thoughtless remarks which imply that he has been "crazy" rather than ill, and that the illness was his fault—which of course it was not.

Suppose you have recovered from schizophrenia, either with or without the use of shock therapy. How can you best guard yourself against future psychotic episodes? As a rule, as a person recovers, he gains weight. The best assurance of a continuing high physical resistance is to keep your weight constant. If you happen to be a married woman, you should not have a child for at least five years, since relapses following childbirth are not uncommon. As normal a life as possible should be led, and not too much concern given to the possibility of another attack. The fact that you recovered once shows you have a fairly high level of resistance.

Any circumstance which will affect this level of resistance conceivably may act to favor a recurrence of the illness. Exhausting illness such as pneumonia or influenza should be given careful treatment; prolonged emotional or physical stress, overwork, and the like should be avoided.

Try to steer a middle course between too much self-concern and self-neglect.

One who recovers from a manic-depressive psychosis has better than one chance out of two that he will never have another attack. Personal mental hygiene after recovery depends on whether the individual is ordinarily of the depressive or hypomanic type. If of the depressive type, he should keep himself busy with outside interests and activities so that opportunity for brooding is held at a minimum. (This does not mean overwork.) If of the hypomanic type, the spouse or nearest relative or friend should be provided with an understanding of the manic temperament so that this person can point out to the recovered patient—and to others when necessary—that there is a tendency to be excitable, to overreact, and to say things which will be regretted. The mistakes made by the hypomanic which offend or hurt others should be called to his attention so that he may rectify them. Otherwise, no matter whether depressive or hypomanic, as normal a life as possible should be followed.

If recovery from illness followed the use of electric convulsive therapy, then it has been found that with the recurrence of undue depression or mania, a new series or limited number of shock treatments will "abort" another attack and avoid rehospitalization.

The same observations which have been made with respect to manic-depressive psychosis apply to involutional melancholia. Since electric convulsive therapy is so very effective in melancholic conditions its use should always be considered. The man or woman aged between 45 and 60 who becomes acutely depressed probably should receive shock treatment under the supervision of a competent psychiatrist. The number of suicides which occur during this age period could undoubtedly be sharply reduced by the more widespread acceptance and use of this type of treatment.

The aged *

Although the physiological and psychological processes of aging are closely associated, the correlation is not perfect. Some old people need, seek, and demand help and attention. Others, old in years, never think of themselves as old, and neither seek nor ask for assistance unless seriously ill. Any elderly person is happier and healthier if he has some activity, some

* Useful information dealing with the problems of the aged can be obtained from G. Lawton, *New Goals for Old Age,* New Pork, Columbia University Press, 1943, and from O. J. Kaplan, *Mental Disorders in Later Life,* Stanford, Calif., Stanford University Press, 1945.

work, some interest which is within his ability. The feeling of uselessness is one of the most distressing features of old age. The aged have lived their lives as productive members of society and they feel lost when it is apparent to them that they are no longer useful. If some occupation or responsibility, either of a paying or nonpaying nature, can be obtained for them they are more apt to be satisfied and contented. If neither is possible, then some hobby, such as church work, Red Cross work, or gardening should be encouraged.

That the aged have presented special difficulties in human society throughout history is shown by the commandment, "Honor thy father and thy mother, that thy days may be prolonged." With the increased longevity and consequent greater number of aged we are faced with a problem of increasing magnitude. Not enough attention has been given to the psychological and social problems which are being caused by these greater numbers. One thing is certain, adjudging old people who show transient episodes of eccentricity as senile dements and committing them to state mental hospitals is not good mental hygiene, socially desirable, or an adequate solution.

When senile dementia or cerebral arteriosclerosis has established itself, the problem of hospitalization as opposed to home care does arise. If the aged person requires close supervision and permanent nursing care which are difficult for the family to provide, institutionalization is advisable even though the psychological effect of being "put away" is unfortunate. Each family has to settle this difficult question in the light of its own circumstances.

Organic brain damage

If recovery from the immediate effects of brain damage takes place, there are frequently losses in function which seem more or less permanent. That these losses are not irretrievable if circumstances are favorable was brought out when the facts of amnesia and aphasia (Chapter 28) were considered. Other patients show less clearly defined mental defects. They are more irritable, less inhibited in social relations, more talkative, and somewhat less keen intellectually. In other words they are more or less handicapped and should receive the consideration due any handicapped person.

Those who have recovered from general paresis have suffered from brain damage. Ordinarily, they cannot be expected to work or to think as intelligently and efficiently as they did before the illness. They must adjust themselves to a simpler and less pretentious form of life. They cannot be

called on for prolonged exertion, either physical or mental. The therapy has cured any latent syphilitic infection, so that no one need have further fears on that score.

Epilepsy *

If a member of your family begins to have seizures, what should you do? *Seek competent medical assistance.* There has been so much progress in the medical therapy of epilepsy during the past quarter century that a hopeless attitude or attempted concealment of the illness from the neighbors is little short of criminal. Where adequate treatment is instituted early in the course of the disease, it is estimated that in 60 to 80 per cent of the cases the seizures may be arrested and kept under control. A careful medical diagnostic study of each case should be made in order to determine its possible cause and the best regimen of treatment.

Whether an individual case should be institutionalized is a problem that must be considered. In certain, but not all, of the states of the Union, the existence of epilepsy automatically bars the child from the regular public schools. Where school attendance is legal, the type and the frequency of seizures should determine whether the child is allowed to attend school. If the child has very mild *petit mal* attacks, or even *grand mal* attacks that occur only at night, school attendance is usually practical. In every case, some systematic form of education should be instituted. If attendance in special classes or home tutoring is necessary but not possible, then it may be to the best interests of the child to put him in a special school or a state institution where proper education can be provided.

The family must teach the child to adhere to the regimen of treatment that has been found successful. As the epileptic grows older he must understand his condition and learn to accept the limitations which are imposed by his disability. Because he is or has been an epileptic, there will be some activities he must avoid and some professions or vocations he should not consider entering. Proper educational and vocational advice should be sought and followed.

The progress that has been made in the understanding and treatment of epilepsy is outstanding among the types of therapy used in psychopathological disorders. Unfortunately, epilepsy is still popularly considered as a

* The problems of the epileptic are dealt with in T. J. Putnam, *Convulsive Seizures: How to Deal with Them,* Philadelphia, Lippincott, 1943, and in W. G. Lennox, *Science and Seizures* (2d ed.), New York, Harper, 1946.

disgrace and calamity. However, modern therapeutic methods give a firm foundation for a feeling of optimism in most cases.

The alcoholic *

There is one attitude to assume in dealing with any real alcoholic, namely, that the alcoholism is either an illness or a symptom of an illness. This attitude squares with the facts. Most human beings "can take it or leave it alone." There is some basic disorder in the person who cannot leave it alone. Alcoholics are a heterogeneous group and must be dealt with in a variety of ways.

Strange as it seems, the first and usually the most difficult problem is to persuade the alcoholic to recognize and to admit to himself that he is an alcoholic. Until he is convinced of this he can see no reason for concern, no reason for therapy, no reason for reform. All advice is to his ears the croaking of kill-joys and moral reformers. He finds it easy to rationalize and to offer self-justification which helps him resist direct evidence, argument, and well-meant assistance.

A reformed alcoholic seems to be more effective than anyone else in convincing an alcoholic that he is an alcoholic. He speaks the same language and has had the same experiences. In some instances, the experience of being "sobered up" in a general hospital ward for acute alcoholics is an effective warning to a potential drunkard. He can see for himself the end-stages of alcoholic deterioration and the social decline of the chronic alcoholic. Overprotection, covering up, and a hush-hush attitude are rarely effective.

Very few alcoholics have ever been cured by the exhortations and good services of friends or relatives. It is best to make use of those hospitals and clinics which specialize in the treatment of alcoholism, or to get the patient in touch either with "Alcoholics Anonymous" or with the Salvation Army. Such agencies or groups report excellent results with many persons who come to them.

In brief, alcoholism is a disease which cannot be cured by attempts to hide it. The alcoholic himself must realize his own condition and then put himself (or be put) in contact with a therapeutically minded organization which knows his problems, speaks his language, and can choose a therapy oriented to his problems.

* Problems of mental hygiene with alcoholics are dealt with in E. A. Strecker and F. T. Chambers, *Alcohol: One Man's Meat,* New York, Macmillan, 1938, and *Alcoholics Anonymous,* New York, Works Publishing Company, P.O. Box 459, Grand Central Annex, 1943.

Psychopathic personalities

It will be recalled that the diagnosis of psychopathic personality is given those individuals whose behavior is abnormal but who are not physically ill, not neurotic, not psychotic, and not mentally defective. Strictly speaking, mental hygiene has never been found effective with psychopaths. He (or she) may be the sort of person that goes from job to job, refuses to accept responsibility, signs bad checks, and gets into difficulties which lead to arrest and imprisonment. He may go on drinking sprees which lead to thefts, assaults, and immorality. Such a person should be urged to see a psychotherapist, but all too often little benefit is to be hoped for. The problem usually resolves itself into how to get along with such a psychopath.

The Old World custom of "remittance men" was one solution. The black sheep of the family was dispatched to some far corner of the world, sent a regular remittance, and told never to come home. Harsh though it seems, it was realistic, and, in the long run, often served the interests of all concerned. Individuals of this type cannot be depended upon; their promises are not kept; they are not deterred by love or affection, nor are moral and ethical considerations of any avail. In dealing with them, one must either resign oneself to heartbreak, bankruptcy, and ultimate defeat, or one must be completely dissociated from such a person. Some families bankrupt themselves through their desire to make good all the black sheep's debts in order to get him out of trouble. It may be unselfish to do this, but at least those concerned should be aware that their efforts afford no permanent solution, and that, in the long run, they are not helping him or themselves. By going to his aid, they solve the immediate problem. Failure to help *may* provide an incentive toward his improvement because it will force him to face the consequences of his acts.

Mental deficiency

Another problem which some families must face is what to do about a child who shows marked mental retardation. Recognition of mental deficiency is possible at an early age if the child is an idiot or imbecile. The whole course of physical development—that is, the age at which the child supports his head without help, the age of crawling, and the beginning of speech—is markedly delayed. When the mental defect is not so marked—that is, when the child is either a high-grade imbecile or a moron—the parents may not be aware of the condition until the child begins to have difficulties at school. Most school systems have facilities for giving intelli-

gence and educational tests which will provide a definite estimate of the child's mental ability.

When marked mental defect is present, the question of institutionalization must be considered. The majority of idiots and imbeciles are best cared for in an institution. They constitute a very undesirable influence in a home in which there are other children. Even if there are no other children to be considered, the care of an idiot or imbecile is more than the average mother can successfully undertake. Whether or not morons should be institutionalized depends upon many factors in the specific home situation. These children require a great deal of special protection and control and, if the families are not able to provide it, an institution is preferable. Most of the institutions for the feeble-minded have increased the training facilities available, so that they are really special schools directed toward returning the high-grade mental defective to society. By special emphasis on manual or domestic training, the mentally dull child may learn to be more or less self-sustaining; without this special training he may always be dependent on his family or on some relief agency.

Psychopathology in everyday life

Many of the mental mechanisms seen in abnormal persons stand out like caricatures of the same sort of processes seen in normal persons. Rationalization, sickness benefit, projection, all common in normal mental life, are exaggerated in mental disease. Other mechanisms found in the abnormal person occur but rarely in the normal person. The apathy of the schizophrenic, the mental dilapidation of the senile, or the basic hostility of the manic are not exaggerations of normal mechanisms but seem to be unique products of the disease. In the light of all of the facts of psychopathology, one may conclude that having observed certain mental mechanisms in one's own behavior, or having been told of them by others, still gives an imperfect understanding of all the phases and types of mental disease.

In brief, the knowledge of psychopathology of everyday life is of more value in dealing with others than in trying to help oneself. It is also of more value in the hands of experts than in the hands of eager amateurs. There is a human tendency to help others who are in distress. Most mental illness seems to the unwary to be nothing more than the expression of queer ideas. "Change your attitudes," "Buck up," "Snap out of it," "Forget it," "Don't take things so seriously," "Face reality squarely," are common forms of so-called therapeutic advice. Just as it may happen that an occasional

headache is due to "eyestrain" and will be alleviated by resting the eyes, so an occasional character deviation may be alleviated by one of these slogans. But it does not happen very often.

In addition to the more obvious neurotic and psychotic types, there are many difficult, queer, odd, or unusual people who enter into our everyday life and with whom we must manage to get along. They are not mentally ill or defective or in any way in need of psychiatric care and attention. One must somehow attempt to understand them. Most of the following suggestions are truisms which, in spite of their obvious nature, many people never think to try.

You should endeavor to be objective and rational in dealing with any difficult person. You must recognize the possibility that such a person is using different standards from yours. The recognition of the facts of individual differences and of other people's right to their own opinions is an attitude easily achieved by some and never comprehended by others. The difficult person does not react to ordinary values and motives in an expected fashion. One must shift one's viewpoint to look at things the way he does. Frequently, the lack of information about such a person's background and present motivation may make him seem unreasonable. In general, sympathy and empathy depend on mutual similarity. Many of the difficulties arising in interpersonal relations result from the fact that we expect too much of other people, especially stupid people. Placing high standards for others results in exasperation when they fail to meet these standards.

Previously it has been pointed out that it is sometimes necessary to adjust yourself to those who fail to adjust to you. In extreme form, this may amount to trying to fit your life to others' idiosyncrasies to an extent that cannot be seriously defended. The question then is, When does putting up with someone become inadvisable? In specific terms, When is the alcoholic spouse so objectionable that separation is the only solution? When does the senile parent make a normal family life impossible? When must a retarded child be put in an institution? Obviously, there is no set standard with which to answer such questions. The more information anyone has about the lives of his friends and acquaintances, the more he is impressed by how much human beings can put up with and still get along. An increased knowledge of abnormal psychology and insight into the mental mechanisms that are common to both the normal and abnormal person increase anyone's tolerance and understanding. They should provide a sound basis for solving rather than rejecting or avoiding everyday problems.

The role of psychotherapy in mental hygiene

The student of abnormal psychology should recognize the assets and the limitations, the virtues and drawbacks of psychotherapy, either as they may apply to others or to himself. He should recognize that "going to see a psychiatrist" or "receiving psychotherapy" is not the accomplishment of a miracle but the application of certain definite psychological principles. The intelligent use of these principles will effect cures in some instances. It will be beneficial for many cases, and of no avail in others. Any person in need of psychotherapy must cooperate to the best of his ability with the therapist. He must, of necessity, put his trust and faith in the ability of the therapist. If he did cooperate, if the therapist has been conscientious and competent, and yet no improvement was obtained, neither the patient nor the therapist should be blamed. Rather, the condition must be considered as one for which the proper therapy is still unknown and the only personal adjustment that the patient can make is to adapt to his difficulty as best he can, following the suggestions provided by the therapist.

Generally speaking, the over-all picture of the improvement of mental health and mental hygiene is a social problem, a public health problem, rather than a series of individual problems. Better hospital, clinic, and institutional care follows an enlightened public opinion and insistent public demand. New discoveries, new or improved methods of treatment, depend on scientific progress, and that progress depends on public support and on the attraction into research of the best possible intellects. As intelligent human beings, we all agree that one unquestioned benefit of civilization and cultural progress is the diminution of disease and the prolongation of healthy life. Much has been done to bring many forms of physical disease under control. Much remains to be done to increase our knowledge of psychopathology and psychotherapy.

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Glossary

Abulia; Aboulia. Inability to initiate voluntary action or make decisions.

Abreaction. Discharging pent-up emotion; (see cathartic method).

Acute war neurosis. A type of traumatic neurosis with a characteristic symptomatology and course.

Addiction. Uncontrollable craving for alcohol or drugs.

Adjustment. Arranging, composing, and harmonizing the differences, conflicts, and decisions which must be made in everyday life; a means of maintaining health.

Affect. Emotion and feeling in general; the dynamic quality of emotion.

Agnosia. Loss of ability to recognize the meaning associated with sensory stimulation; usually used to describe loss of ability to recognize objects by touch or handling.

Agoraphobia. Morbid fear of open places.

Agraphia. A disturbance in the ability to write.

Alcoholic hallucinosis. A pathological condition occurring in chronic alcoholism marked by active visual and auditory hallucinations.

Alcoholic paranoid state. Paranoia in conjunction with chronic alcoholism.

Alcoholic psychosis. A gross form of mental deviation associated with chronic alcoholism, in which the following subtypes are recognized: pathological intoxication, delirium tremens, Korsakoff's psychosis, alcoholic hallucinosis, alcoholic paranoid states, and chronic alcoholic deterioration.

Alexia. A disturbance in the ability to read or understand written language.

Allergy. A condition of unusual sensitivity to substances which do not similarly affect most people.

Alzheimer's disease. A variety of early senile dementia with a marked defect in immediate memory, recall, and speech.

Ambiguous figure. An outline picture in which certain parts are open to two or more interpretations.

Ambiversion. Personality tendencies balanced between introversion and extroversion.

Amentia. Feeble-mindedness.

Amnesia. Loss of memory.

Amnesic aphasia. A disturbance of speech with associated memory defects.

Amok; Amuck. A state of frenzy or furor exhibited by natives of Malay in which the individual dashes around killing and injuring others until he is killed or knocked unconscious.

Amusia. A disturbance in the ability to appreciate or produce music.

Anesthesia. Insensibility to stimulation.

Angina pectoris. Sudden, overwhelming pain in the chest due to spasms of the great arteries.

Anhedonia. Loss of feelings of pleasantness or unpleasantness in appropriate situations.

Anorexia; anorexia nervosa. Persistent marked decrease or loss of appetite and hunger for food.

Anterograde amnesia. Defects of memory resulting from inadequate impression or fixation.

Anxiety. Intense apprehension and dread.

Anxiety neurosis. A form of neurosis in which anxiety is the predominant symptom.

Anxiety preparedness. A state of increased sensory attention and motor tension conducive to the development of anxious feelings.

Apathy. Pathological indifference.

Aphasia. Gross defect or loss in ability to use or comprehend speech.

Apraxia. Loss of ability to perform skilled acts in the absence of either motor paralysis or sensory anesthesia.

Astereognosis. Loss of the ability to recognize objects by cutaneous or kinesthetic sensation, that is, by feeling them.

Asthenia. Lack of energy and vitality.

Asthenic type. Variety of physical constitution characterized by being tall and slender with little muscular strength.

Athetosis. A recurring series of tentacle-like movements of the hands and feet associated with certain forms of brain damage.

Athletic type. Variety of physical constitution characterized by being strong, solid, and muscular.

Aura. Type of peculiar sensory experience that precedes an overt epileptic attack.

Autism. A form of thinking which is predominantly subjective in character, where such objective material as does occur is given subjective meaning and emphasis.

Autoerotism; Autoeroticism. Sexual gratification from self-stimulation; masturbation.

Autointoxication. Poisoning by some uneliminated endogenous toxin.

Automatic writing. Writing without full conscious control.

Autonomic nervous system. That portion of the nervous system which regulates involuntary or vegetative bodily function.

Basal metabolism; Basal metabolic rate; BMR. A measure of the energy expended in maintaining the bodily functions, recorded after 14 to 18 hours of fasting and at least 30 minutes of rest.

Benign stupor. A stuporous state from which the patient recovers, without immediate evidence of schizophrenia or hysteria.

Body image. Mental image of one's own body.

Broca's area. A portion of the frontal lobe supposedly associated with organization of motor speech; area 44 of Brodmann.

Bulimia. A morbid condition of persistent hunger.

Castration complex. Psychoanalytic concept of the conscious and unconscious emotion related to the fear of the loss or injury of the genital organs.

Catalepsy. A state in which sensation and voluntary motion are suspended, the muscles rigid, pulse and respiration slow, and the body cold and pale.

Catatonia. One of the varieties of dementia praecox (schizophrenia); a state of stupor or automatic behavior marked by either negativism or waxy flexibility.

Catharsis. The release of unpleasant emotions through talking or some other form of behavior.

Cathartic method. The process of working off or discharging pent-up emotion or unpleasant experience by living it through again in speech, action, or feeling.

Cathexis. A psychoanalytic concept of the investment of psychic energy or libido in an object.

Causalgia. Sensation of burning pain.

Central nervous system. Brain and spinal cord.

Cerebral arteriosclerosis. "Hardening of the arteries" of the brain which frequently results in the sudden onset of confusion, excitement, and other forms of psychotic behavior.

Cerebral dysrhythmia. Varieties of abnormal electroencephalographic records usually associated with epilepsy.

Character neurosis. A condition in which the personality traits constitute the equivalent of a neurosis; a mild neurotic state.

Choleric. A temperament characterized by grouchy ill-humor and readiness to anger and rage reactions.

Chorea. Spasmodic muscular twitchings which are involuntary, irregular, and jerky.

Chromosomes. Microscopic threadlike structures in the nucleus of both the ovum and spermatozoon which contain the genes.

Chronic alcoholic deterioration. Physical and mental dilapidation subsequent to chronic alcoholism.

Cilia. Hairlike processes on the surface of cells.

Claustrophobia. Morbid fear of closed places.

Clouding of consciousness. A disturbance of consciousness found in certain psychotic states, characterized by a partial loss of orientation and varying degrees of imperception.

Co-consciousness. A stream of consciousness dissociated from, but coexistent with, the usual personal consciousness.

Colloidal gold test. A laboratory test method for diagnosis of syphilis.

Color shock. A pattern of response on the Rorschach Ink Blot Test said to be indicative of neurotic tendency.

Combat fatigue. A type of traumatic neurosis, appearing during stress of war, which follows a fairly consistent pattern of symptoms and course.

Compulsion. An irresistible impulse to carry out some act.

Compulsion neurosis. A form of neurosis in which actions or ideas are carried through repetitively and without logical reason.

Confabulation. The filling in of memory gaps with incorrect, irrelevant, and unconnected details.

Conflict. A psychological state caused by the action of mutually contradictory or opposing wishes, motives, or impulses which may or may not be conscious.

Congenital. Existing at birth, due to either hereditary factors or environmental circumstances during embryonic life.

Constitution. The relatively constant biological make-up of the individual which makes for health or disease.

Conversion. The shifting of a repressed wish with its strong emotional tone into a physical symptom.

Cretinism. Mental deficiency associated with thyroid insufficiency.

Culture. The sum total of the attitudes, ideas, and behavior shared and transmitted by the members of a society, together with the material results of such behavior.

Cycloid; Cyclothymic. A personality type characterized by alternation between optimism and depression.

Decadent drinker. An inebriate whose family history exhibits a decline in acceptable behavior and life adjustment during successive generations so that the individual has "gone to seed."

Déjà vu. Illusion of recognition, of having seen or been there before; a feeling of familiarity in new circumstances.

Delirium tremens. Condition sometimes occurring subsequent to chronic alcoholism, marked by hallucinations, phobias, headaches, tremors, and convulsions.

Delusion. Morbid false belief.

Dementia. The loss or gross disorganization of mental ability.

Dementia paralytica. General paresis.

Dementia praecox; Schizophrenia. A severe type of mental disease characterized by delusions, hallucinations, and apparent mental deterioration.

Depression. A mood of extreme hopelessness and despondency with feelings of inadequacy and unworthiness.

Dereism. Thinking which violates the laws of reality and logic.

Depersonalization. A loss of the feeling of reality of oneself or of individuals, objects, or activities in the environment.

Deterioration. The loss of mental efficiency.

Determining tendency. The entire process of motivation, decision, and volitional activity.

Developmental approach. Viewpoint that both heredity and environment contribute to every aspect of the constitution, behavior, and mental life of the individual.

Developmental direction principle. One of the principles of growth, that there is a biological differentiation according to which the head end grows and develops more rapidly than the more posterior portion.

Devolution. The reversal of the process of evolution.

Diagnosis. The determination and identification of a disease or disease process.

Dipsomania. Periodic obsession for and indulgence in alcoholic beverages.

Disease. A condition of body or mind, or some part of body or mind, in which orderly function is disturbed or deranged.

Dissociation. Inadequate integration of

consciousness so that some ideas or systems of ideas split off from the remainder of consciousness and exist apart from the ordinary control of the individual.

Duodenum. The upper part of the intestine, connected with the stomach.

Dynamic. In psychopathology, usually refers to the motive or purpose of behavior or mental reactions.

Dysphasia. Disorder of ability to speak.

Dysplastic. The body type which is not athletic, asthenic, or pyknic but a combination of these without adequate blending.

Eclectic. Selection and organization of features of many diverse systems of thought into a comprehensible viewpoint.

ECT. Electric convulsive therapy.

EEG. Electroencephalogram.

Effectors. Motor organs of the body.

Effort syndrome. Neurocirculatory asthenia.

Ego. Self; conscious experience or awareness; "I will."

Egocentric. Self-centered.

Eidetic imagery. Clear, vivid imagery which has an objective perceptual character, though usually recognized as subjective in nature.

Elation. Emotional state marked by intense pleasure and a feeling of well-being.

Electroencephalogram; EEG. Record of electrical potentials from the brain taken from the surface of the scalp.

Emergent evolution theory. The doctrine that new and essentially different forms occur in the course of evolution, which are not the resultant of combinations of preexisting forms.

Emotional immaturity. Character trait of childishness, impulsiveness, and poor emotional control.

Encephalitis. A disease process in which there is inflammation of the brain substance or of its coverings.

Endocrine glands. Ductless glands which secrete specific chemical substances carried by the circulating fluids of the body.

Endogenous. Refers to factors originating predominantly within the organism itself.

Enuresis. Bed wetting continued after the age at which bladder control is normally established.

Epilepsy. A clinical syndrome characterized by recurrent attacks of disturbance of consciousness, the form of attacks varying from generalized convulsions to momentary "blanks" in awareness.

Epileptic equivalent. Psychic seizure; disordered behavior which is thought to be similar in origin to convulsive seizure.

Epileptoid personality. A type characterized by being self-centered, pedantic, shallow in emotion, fanatic in tendency, and given to violent outbursts of anger.

Ergasiology. Psychobiology; functional psychology (A. Meyer).

Esophagus. The tube leading from the mouth to the stomach.

Etiology. That part of science which investigates the causes of disease.

Euphoria. Unwarranted or pathological feelings of comfort, well-being, and optimism.

Exhibitionism. The public display of the genital region for the purpose of personal sexual satisfaction.

Exogenous. Refers to factors acting from outside the body or from another part of the body, outside of the system which is the locus of the morbid condition in question.

Extrapunitive. Tending to place the blame on other persons or things.

Extroversion; Extrovert. A personality type characterized by interests directed mainly toward external environment and social phenomena, rather than toward oneself or one's own experience.

Fetishism. Morbid sexual attraction and stimulation by an inanimate object, usually some article of clothing.

First-admissions. The number of persons who are admitted for the first time to some particular institution or group of institutions during some particular period of time.

Fistula. A canal or opening (usually pathological) from a body cavity to the external surface of the body.

Fixation. The arrest or halting of development of some part of the libido during the ordinary period of development so that some portion of the behavior or emotional life of the individ-

ual remains at a level which was appropriate at an earlier age, but is now inappropriate.

Forensic medicine. Medical aspects of the law and legal procedures.

Fraternal twins. Twins that develop from two fertilized ova.

Frontal lobectomy. Surgical removal of some portion of the frontal lobes of the cerebral cortex.

Frontal lobotomy; Leucotomy. Surgical severing of white connecting tracts between frontal cortex and thalamic nuclei.

Fugue. Episodes of automatic behavior usually associated with the desire to run away from unpleasant situations, for which the patient has no memory unless the memories are brought to consciousness under hypnosis; narcoanalysis, or the like.

Functional asymmetry principle. A principle of growth which governs parallel and diagonal coordination.

Functional cause or basis. The descriptive term used when no organic cause or basis is found in the etiology of the disease; disorders of function by or through other functions.

Furor. An acute excitement usually accompanied by violence.

Galgenhumor. Gallows humor; joking in the face of disaster or death.

Gastric mucosa. The mucous membrane lining of the stomach.

General paralysis of the insane. General paresis.

General paresis. A form of progressive motor paralysis accompanied by a peculiar sort of mental deterioration due to invasion of the brain by syphilitic disease.

Genes. The factors in the germ cells which are involved in the production of hereditary characteristics.

Gerontophilia. Sexual attraction to a much older person.

Glutamic acid. An amino acid synthesized by the body.

Gonad. Sex gland; ovary or testicle.

Grand mal. A generalized convulsive seizure accompanied by a sudden loss of consciousness.

Graves' disease. Exophthalmic goiter; a condition characterized by prominent eyeballs, enlarged thyroid gland, muscular tremors, rapid heart action, and mental disturbance.

Group psychotherapy. Application of psychotherapeutic methods or reeducational methods by a therapist to a group of individuals at the same time.

Hallucination. A false perception in which there is no known stimulus but the experience seems real.

Health. Soundness of body and mind so that bodily or mental functions are duly discharged.

Hebephrenia. One of the varieties of dementia praecox or schizophrenia.

Hereditary spastic diplegia. Spastic paralysis.

Heredity. The sum total of physical and mental characteristics which are passed from parent to child by means of the biological carriers, the chromosomes or genes.

Heterosexual. Sexually oriented or attracted to members of the opposite sex.

Homeostasis. The relatively constant internal environment maintained by the coordination of physiological processes.

Homosexual. Sexually attracted by members of one's own sex.

Huntington's chorea. An hereditary disease manifested in adult life and characterized by jerky, twitching, unsteady movements and mental deterioration.

Hypermnesia. Exaggerated exactness of memory.

Hyperventilation. Forced deep breathing.

Hypnoanalysis. Integration of the hypnotic method with psychoanalysis or other forms of psychotherapy.

Hypnosis. An artificially induced mental state characterized by great suggestibility.

Hypnotherapy. Use of hypnosis as an adjunct to psychotherapy.

Hypochondriasis. Symptoms or illness referred to some part, organ, or organic system of the body when no causal relationship can be established between the complaints and any physical disorder of function or structure.

Hypophrenia. Feeble-mindedness.

Hypoplastic body form. Underdevelopment of the body.

Hypothyroidism. Insufficient secretion of the thyroid gland.

Hysteria. A neurosis in which fluctuating physical symptoms without organic

basis are found, occurring usually in individuals of childish, self-dramatizing personality.

Id. Unconscious urges, motives, instincts and drives; a bundle of incoherent, unorganized cravings predominantly sexual and aggressive in nature; "It wants."

Ideation. The process or mental operation of forming ideas.

Identical twins. Twins developing from the fertilization of one ovum.

Identification. The unconscious process of molding or forming one's own Ego after the fashion or pattern of someone taken as an ideal or model.

Idiot. Low grade level of amentia with an IQ range of 0 to 25.

Idiot savant. An ament with some special ability.

Illusion. The inexact or inaccurate perception of some object or situation.

Imbecile. A medium level of feeblemindedness with an IQ of 25 to 50.

Impassioned drinker. Inebriates who are psychologically and psychosexually immature and whose conflicts in striving for maturity are relieved by alcoholism.

Imperception. Failure of stimulation and sensation to arouse their usually associated images, ideas or responses so that experience has little or no meaning.

Impunitive. Tending to hold that a situation was unavoidable or unforeseeable and hence no one is to blame.

Individual maturation principle. A principle of growth referring to the specific and orderly development of each individual.

Individuation. The differentiation of specific, localized responses out of generalized mass activity.

Infantile cerebral palsy. Spastic paralysis.

Inhibition. The restraint or repression of certain forms of expression.

Insight. Awareness of the motivation, drives, and urges involved in behavior or mental life.

Intelligence quotient; IQ. The mental age obtained on an intelligence test, divided by the chronological age, multiplied by 100 (to eliminate the decimal point).

Intercurrent disease. An illness coexistent with, but etiologically independent of, some other basic condition or disease.

Introjection. Secondary identification, a process of assimilation of an object into the Ego.

Intrapunitive. Tending to blame oneself no matter what the true circumstances were.

Introversion; Introvert. A type characterized by the direction of one's energy and interest toward oneself and one's inner world of experience.

Inversion. Homosexuality. Sometimes refers to sexual situations in which the sexual roles of male and female are reversed.

Involutional melancholia. A psychosis marked by an agitated depression commonly occurring between ages of 45 and 65, without history of previous mental illness.

IQ. Intelligence Quotient.

Jacksonian seizure. A convulsion of some part of the body with no loss of consciousness.

Jamais vu. Inability to recognize that which is well known and thoroughly familiar.

Kahn test. Laboratory test of syphilitic infection.

Kinesis. A movement of the body resulting from muscular contraction.

Korsakoff's psychosis. An organic mental syndrome with a characteristic memory disturbance usually associated with chronic alcoholism but also found with certain infectious processes and metallic poisonings.

Lability of affect. Unusually changeable emotionality, shifting rapidly and often inadequately controlled.

Larynx. A cartilaginous box in throat over which are stretched the vocal cords; the "Adam's apple."

Lattah. Mental derangement occurring among natives of Malay; probably hysteria.

Lay analyst. A person, not a physician, who uses psychoanalysis as a therapeutic method.

Lesion. A more or less circumscribed pathological change in the tissues.

Leucotomy; Leukotomy. Frontal lobotomy.

Libido. The force by which the sexual

instinct is represented in the mind; the energy of the sexual instincts.

Little's disease. Spastic paralysis.

Lobotomy. Severing white connecting tracts between frontal lobes and thalamus.

Localization theory. The theory that psychological functions have their neural locus in some specific area of the brain.

Lunatic. A mentally ill or insane person.

Malingering. The conscious feigning of illness or the intentional exaggeration of some actual physical complaint.

Mania. A state characterized by great elevation of mood, psychomotor overactivity, and overproduction of ideas.

Manic-depressive psychosis. A psychosis characterized by states of mania and/or depression.

Masochism. The seeking and obtaining of sexual gratification by the infliction of pain on oneself.

Mass action theory. The theory that psychological functions depend on the action of the entire cerebral cortex, or at least the action of large cortical areas.

Masturbation. Self sexual stimulation.

Maturation. Development which accompanies the process of cell differentiation, and which may occur any time during life of the individual without being directly dependent on growth through use or upon experience.

Meditation period. The period of weeks or months between the time of injury and the onset of symptoms of a traumatic neurosis.

Megalomania. Delusions of grandeur.

Melancholia. A morbid mental state characterized by depression, gloominess, hopelessness, and pessimism.

Mendelian law. The principle of hereditary transmission according to which certain characteristics are transmitted to the offspring in units without change, with a definite ratio for each generation.

Meningitis. A disease marked by inflammation of the membranes which cover the brain and spinal cord.

Mental deficiency; Amentia; Oligophrenia. Impairment or lack of capacity for intellectual growth and development.

Mental hygiene. The systematic practice of measures for the preservation and/or restoration of mental health.

Mental incompetency. Legal term indicating the lack of responsibility for one's acts because of mental disease or defect.

Mental mechanisms. Unconscious or conscious stylized processes whereby the inner conflict situation is eliminated or reduced in its severity; systematic outlay of mental energy to achieve desires, avoid unpleasantness, or create symptoms in the effort to solve mental conflict; the buffers between personal conflicts and the reality of the external world.

Mescal; Mescaline. A drug, originally obtained from cactus, which produces peculiar mental states including visual hallucinations.

Mesmerism. Hypnotism.

Metabolism. The totality of physical and chemical changes which take place in the body, including anabolic and catabolic processes.

Microcephaly. A form of amentia in which the head is unusually small (circumference of less than 17 inches).

Mixed psychotic states. Psychotic conditions in which the outstanding symptoms change from time to time and are not restricted to the usual pattern of the classical diagnostic categories.

Mongolism. A form of amentia in which the form of the face resembles that of the Mongolian race.

Monoideic. Tendency to revert constantly in thought or action to one idea or subject.

Moral defective. According to English law a person with mental defectiveness coupled with strongly vicious or criminal propensities.

Morbid. An abnormal, disordered, or diseased state or condition.

Mores. The customs of a social group.

Moron. The highest grade of feeblemindedness with an IQ of 50 to 70 or 75.

Multifactorial genetic mechanism. Heredity based on the interaction of several or many specific genetic determiners.

Multiple personality. Dissociated state in which certain memories and sets of ideas break off from normal consciousness and assume independent existence.

Myxoedema. A disease characterized by a functional decrease in activity of the thyroid gland, usually accompanied by intellectual impairment.

Narcissism; Narcism. Exaggerated self-love.

Narcoanalysis. Use of partial drug narcosis in order to probe for repressed or forgotten memories or ideas, as part of psychotherapy; sometimes called narcosynthesis.

Negativism; Negativistic. An attitude of resistance to suggestions of others; sometimes resulting in action opposite to that suggested.

Neologism. A new word which has a private meaning to the mental patient.

Nerve net. A rudimentary type of nervous system.

Neurasthenia. A type of neurosis characterized by undue fatigability, feelings of weakness, and numerous bodily complaints of a hypochondriacal nature.

Neurocirculatory asthenia. A syndrome characterized by undue fatigue following stress with very labile circulatory symptoms.

Neurosis. Milder form of mental illness usually with anxiety, compulsions, phobias, and undue fatigue as leading symptoms.

Neurosyphilis. Syphilitic infection of central nervous system.

Neurotic personality. A type characterized by fearfulness, guilt feelings, anxiety, and compulsions, which are less severe and pervasive than those in a true neurosis.

Niacin; Nicotinic acid. One of the members of the vitamin B-complex.

Nihilistic delusions. Delusions of nothingness or nonexistence.

Nonspecific factor. General resistance or lack of resistance which will facilitate appearance of some genetic character or condition.

Nymphomania. Morbid exaggeration of sex desire in women.

Obsession. A morbid idea, urge, or emotion that is persistent and irresistible.

Oedipus complex. Intense emotional attachment to the parent of the opposite sex, with resentment and jealousy of other parent.

Oligophrenia. Feeble-mindedness.

Organic cause or basis. The descriptive term used when there is good evidence indicating that the abnormality is related to structural change in some one of the bodily systems.

Overcompensation. An overcorrection or exaggerated adjustment for the feeling of inadequacy or inferiority.

Panophobia. Fear of everything.

Pantothenic acid. A member of the vitamin B-complex.

Paralysis agitans; Parkinson's disease; Shaking palsy. A disorder marked by tremor of small muscle groups accompanied by rigidity of larger body movements and feelings of restlessness and nervousness.

Paramnesia. Falsification or illusions of memory.

Paranoia. A condition marked by chronic, systematized, gradually developing delusional systems without hallucinations and but little tendency to deterioration, remission, or recovery.

Paranoid dementia praecox. A type of schizophrenia marked by ill organized delusional systems, with or without hallucinations, usually showing gradual mental deterioration.

Parasympathetic system. One of the two divisions of the autonomic nervous system which is usually functionally antagonistic to the sympathetic division.

Parergasia. Synonym for dementia praecox (A. Meyer).

Paresthesia. False or distorted sensation.

Parkinson's disease. Paralysis agitans.

Parorexia. Morbid craving for unusual foods.

Pathological intoxication. An acute reaction to alcohol usually consisting of blind rage reactions and confusion with complete amnesia on recovery.

Pathological liar. Person who indulges in falsification which is entirely disproportionate to any discernible end and who is not otherwise physically or mentally ill.

Pathology. The science and study of disease.

Pattern blindness. A loss of visual functions which depend on the perception of patterns.

Pedophilia. Pathological sexual attraction for young children.

Pellagra. A vitamin deficiency disease.

Perception. The awareness of external objects on the basis of sensation; the integration of sensory experience with other knowledge.

Perplexity state. Morbid condition marked by bewilderment, restlessness, and aimlessness.

Perseveration. The persistent inappropriate repetition or continuation of words, actions, or ideas after they have occurred.

Petit mal epilepsy. Momentary lapses in consciousness without motor convulsions.

Phantom limb. A disorder of cutaneous and kinesthetic sensations in which, after amputation, the missing limb gives rise to certain illusory sensory experiences.

Phenylpyruvic oligophrenia. An hereditary type of mental deficiency with a characteristic metabolic disturbance.

Phobia. An overwhelming morbid fear.

Phrenology. The pseudo science of determining character by the form of the skull.

Physiognomy. The pseudo science of determining character from the features of the face.

Pick's disease. A form of presenile dementia dependent on cortical atrophy accompanied by peculiar disorders of perception and memory.

Plethysmograph. An instrument for measuring variations in the blood volume of some part of the body.

Polarization. Conduction of nerve impulses in one direction only.

Polyideic. Tendency to think or act constantly about a limited number of ideas.

Poverty drinkers. The alcoholic addict who is "down and out," unemployed, and unemployable, without hope or ambition, whose sole gratification is drunkenness.

Precipitating cause. The particular incident or event which revealed the presence of, or initiated, a disorder or disease.

Predisposition. The basis for and tendency toward exhibiting a particular characteristic, trait, reaction, or disease.

Preformation. The gradual development in the direction of a particular characteristic.

Prefrontal lobotomy. Surgical severing of the white tracts connecting the frontal lobes with nuclei of the thalamus.

Primary affect hunger. Unsatisfied need for love, affection, and feeling of being wanted.

Probate. The official proof of wills.

Prognosis. The forecast of the probable course of events (usually disorder or disease).

Projection. The process of attributing to another person the rejected or unpleasant ideas, emotions, or motives that really belong to oneself.

Proprioception. The function of the sensory mechanisms concerned with the maintenance of muscular adjustments or posture.

Provocation. The precipitating cause.

Pseudoneurotic schizophrenia. A variety of dementia praecox in which the early appearing symptoms are similar to those of a neurosis.

Psychasthenia. Term used by Janet to include all psychoneurotic syndromes other than hysteria; sometimes applied to those anxiety states characterized by phobias and fears.

Psychiatrist. A physician specializing in the diagnosis, care, and treatment of mental diseases.

Psychiatry. A division of medicine dealing with mental disease.

Psychic seizures; Epileptic equivalent; Psychomotor seizures. Attacks which are the equivalent of a *grand mal* or *petit mal* seizure, in which automatic motor acts occur and for which the patient has little or no memory.

Psychoanalysis. The system of psychological theory and therapeutic approach devised and named by S. Freud.

Psychoanalyst. One who uses psychoanalysis as a therapeutic method.

Psychobiology. The division of science which deals with behavior and mental life (A. Meyer).

Psychodrama. The psychotherapeutic use of "acting out" roles in situations of strong emotional value or personal conflict.

Psychogalvanic reflex. Change in the electrical potential or electrical resistance of the body due mainly to alteration of activity of the sweat glands.

Psychogenic. Resulting from psychological causes.

Psychometric. Mental testing by quantitative procedures.

Psychomotor seizure. A variety of epileptic seizure.

Psychoneurosis. Neurosis.

Psychopathic personality. A diagnostic category including those whose behavior is socially disturbing but who are not neurotic or psychotic.

Psychopathology. The science and study of mental disease.

Psychosexuality. The sexual component of personality.

Psychosis. A serious mental illness which involves the entire mental life of the individual, during which the patient has little insight into his own condition.

Psychosomatic medicine. The medical treatment in which the interaction of body and mind is considered in the diagnosis, care, and treatment of the illness.

Psychosurgery. The use of brain surgery for the alleviation of psychopathological states.

Psychotherapy. The acting on the human mind by mental means with the intention of effecting a cure or alleviation of illness.

Pyknic type. Variety of physical constitution characterized by roundness of contour, large body cavities, and a plentiful padding of fat.

Rationalization. A process (usually unconscious) which arises from the need for accounting for and justifying to ourselves certain feelings, ideas, acts, or emotions which are not rational.

Reactive depression. Reactive neurosis.

Reactive neurosis. A form of neurosis in which the outstanding symptom is prolonged depression arising from an actual event or situation.

Readmissions. Number of persons entering some hospital or institution two or more times for care or treatment.

Reality testing. The process of interpreting and verifying perceptual experience.

Receptors. Specialized cells or groups of cells which when appropriately stimulated start off nervous impulses.

Recidivist. An habitual criminal; one convicted two or more times.

Reciprocal interweaving principle. A principle of growth concerning the relationships between paired and opposed motor organs.

Regression. Symbolic act of returning to some earlier period of one's life and acting and thinking in a manner appropriate for that earlier period.

Remission. Subsidence or disappearance of particular symptoms markedly apparent at some earlier time.

Repetition tendency. A compulsion to repeat the same act or movement over and over again.

Repression. The exclusion of painful and unpleasant material from direct representation in either behavior or consciousness.

Resident population. The number of persons who are residing at some particular place at some particular time.

Retroactive amnesia. A form of memory loss for a limited period of time preceding the occurrence of some shock or injury.

Retrograde amnesia. General loss of memory of previous events and ideas.

Riboflavin. A member of the vitamin B-complex.

Ribot's law of regression. Loss of memory proceeds from the unstable to the stable; from the memory of recent events to the memory of remote events; ideas before actions.

Rorschach test. A technique of personality analysis based on the interpretation given to ink-blots.

Sadism. The procurement of sexual satisfaction through inflicting pain on others.

Sanguine. A temperament marked by pleasant feeling-tone, enthusiasm, and changeableness.

Satyriasis. Morbid exaggeration of sex desire in men.

Scatter. The range of successful performances over different mental age levels on tests of general intelligence.

Schizoid. A personality type characterized by seclusiveness, lack of emotional attachment to others, diminished initiative, and preoccupation with fantasies.

Schizophrenia. Dementia praecox; the splitting and fragmentation of mental life.

Self-aggrandizing drinker. An alcohol addict who achieves a feeling of im-

portance and ascendance through drinking which his lack of energy and will power otherwise prevent.

Self-regulatory fluctuation principle. A principle of growth referring to self-limited swings in the development of the organism.

Self-suggestion. Auto-hypnosis.

Senile dementia. Morbid intellectual and emotional deterioration in the aged, having a gradual onset and irreversible course.

Sensation. A form of experience aroused from outside the nervous system which cannot be further analyzed by introspection.

Sensitive reference psychosis. Extreme feelings of inferiority and self-reproach which are projected onto others so that delusions of reference are outstanding, along with general depression, nervousness, and imaginary or real physical ailments.

Shaking palsy. Paralysis agitans.

Shell shock. Term applied to neuropsychiatric casualties during and following World War I; equivalent to combat exhaustion in World War II.

Shock therapy. The use of insulin, metrazol, or electric shock as a therapeutic procedure in psychopathological states.

Sickness benefit. The exploitation of physical illness and suffering in order to receive attention, affection, or remuneration.

Simple dementia praecox. A form of dementia praecox characterized by a scarcity of acute psychotic symptoms but with an indifference and lack of judgment and foresight amounting to a deterioration equivalent to feeblemindedness.

Social drinkers. Alcoholics who resort to alcohol as a form of relaxation and compensation for inferiority feelings; drinkers whose occupations provide constant exposure to alcoholic beverages.

Sociopathic personality. Psychopathic personality.

Sodium amytal. A sedative drug of the barbiturate group frequently used for anesthesia and narcoanalysis.

Sodium pentothal. A sedative of the barbiturate group frequently used for anesthesia and narcoanalysis. more rapid in action and more rapidly excreted by the body than sodium amytal.

Softening of the brain. General paresis.

Soldier's heart. Effort syndrome.

Somatic. Pertaining to the body.

Spastic paralysis; Infantile cerebral palsy; Little's disease. A gross form of motor disability due to organic brain lesions.

Spasticity. A muscular rigidity associated with inadequate voluntary control.

Specific factor. A genetic determiner giving rise to some distinct, definite result.

Spes phthisica. Unwarranted hope and euphoria said to occur in tuberculous patients.

Startle reaction. A pattern of motor response to sudden unexpected stimuli such as a gunshot or flash of light.

Stereotypy. Continued morbid repetition of sounds, words, phrases, or movements.

Stimulus-bound. Forced responsiveness to stimuli.

Stupid drinker. Alcoholics either of low intellect or of very submissive character.

Stuttering; Stammering. A disorder of the rhythm of verbal expression.

Sublimation. The unconscious exchanging of apparent expressions of sexuality for other types of behavior and thought which are socially and ethically approved.

Superego. Conscience; "One must not."

Supra-orbital lobotomy. Surgical severing of the nerve tracts connecting the frontal lobes and thalamus carried out through small holes punched through the thin portion of the skull over the eyeballs.

Sydenham's chorea. St. Vitus dance.

Symbolization. An unconscious process which is built up on the basis of association and similarity so that one object or idea comes to stand for (symbolize) some other object or idea through some common aspect.

Sympathetic system. One of the two divisions of the autonomic nervous system.

Symptom. A sign or indication of disease.

Symptomatic alcoholic states. Alcoholism in conjunction with some other type of mental disorder.

Syndrome. A combination or concurrence of several symptoms of a disease.

Synesthesia. The arousing of a sensory experience in a modality which is different from that of the primary stimulus; a color sensation set up by a tone.

Thematic Apperception Test; TAT. A projective technique of personality study in which the subject provides plots for stories based on a series of twenty pictures.

Testamentary capacity. Capacity to make a will.

Thanatophobia. Morbid fear of death.

Thiamine. A member of the vitamin B-complex.

Thymergasia. Manic-depressive psychosis (A. Meyer).

Thyroxin. The hormone secreted by the thyroid gland.

Tics. Sudden muscular spasms similar in form to involuntary movements and without known organic basis.

Topectomy. The surgical removal of discrete areas of the brain; a variety of psychosurgery.

Tort. An offense such as assault and battery, libel, or negligence, in which there is an infringement of personal or civil rights.

Total admissions. The total number of persons admitted (first-admissions plus readmissions) to some institution or group of institutions during some particular period of time.

Transference. Establishment of an emotional relationship (love or hate) with some other person because of unconscious identification.

Transvestite. One who gains morbid sex satisfaction by wearing clothing of the opposite sex.

Trauma. A blow, injury, or shock, either physical or mental.

Traumatic neurosis. A form of neurosis developed following some physical injury, emotional shock, or intense emotional stress.

Twilight states. Transitory disturbances in consciousness in which automatic behavior occurs for which the patient has no memory.

Twin index case. The particular individual who serves as a start of a genetic study based on twins.

Ukupambana. A term used by South African natives for a form of mental disturbance; a "loss of senses."

Ukutwasa. Term used by South African natives for various mental disturbances and abnormal behavior believed to precede the development of mediumistic psychic powers.

Unconscious fantasy. Fantasy formed or elaborated in the unconscious which appears in a fragmentary fashion in conscious daydreams.

Volition. All that is implied by will, voluntary action, decision, determining tendency, and the like.

Wassermann test. Laboratory test for syphilitic infection.

Waxy flexibility. A syndrome occurring in catatonic dementia praecox in which the bodily posture and position may be changed and molded by an outsider and the changes maintained as though the patient were made of wax; the opposite of negativism.

Will act. The moment of decision in the mind of the individual.

Witzelsucht. Ill-timed jocularity and facetiousness (joking ailment) found in certain cases of organic brain disease.

Zoophobia. Morbid fear of animals.

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